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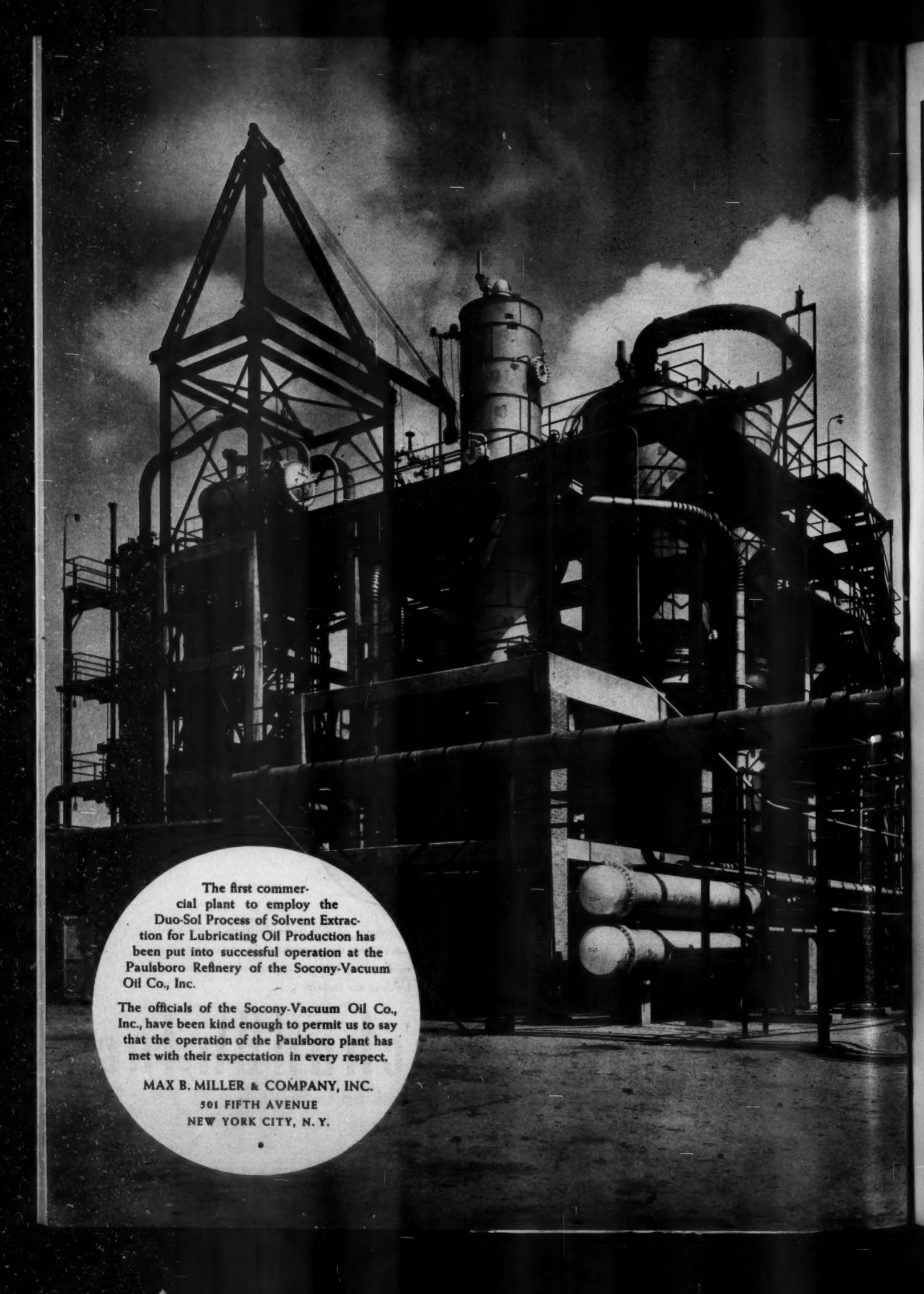

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OIL MAN'S CALENDAR

October

18—Arkansas Oil Dealers Association, Hotel Marion, Little Rock, Ark.

24-25—Indiana Independent Petroleum Association, Inc., first convention, Hotel Severin, Indianapolis, Ind.

29—American Gas Association Convention and Exhibition, Atlantic City, N. J.

November

Los Angeles, Calif., American Association of Petroleum Geologists, Pacific Section, Mayfair Hotel.

12-15—Dallas, Tex., annual meeting, American Petroleum Institute.

15-17—American Institute of Chemical Engineers, Pittsburgh, Pa.

22-23—Fourth annual National Road Oil Congress, Tulsa.

December

3-8—National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York.

7-8—Fifth annual meeting, Independent Petroleum Association of America, Fort Worth, Tex.

January

5-12—New York Automobile Show, Grand Central Palace, New York.

7—New York, Society of Automotive Engineers, annual dinner.

8-10—Milwaukee, Wis., annual convention and Equipment Show of Wisconsin Petroleum Association, Plankinton Hotel.

March

American Association of Petroleum Geologists, Wichita, Kans.

April

8-13—Oil Equipment and Engineering Exposition, Houston, Tex.

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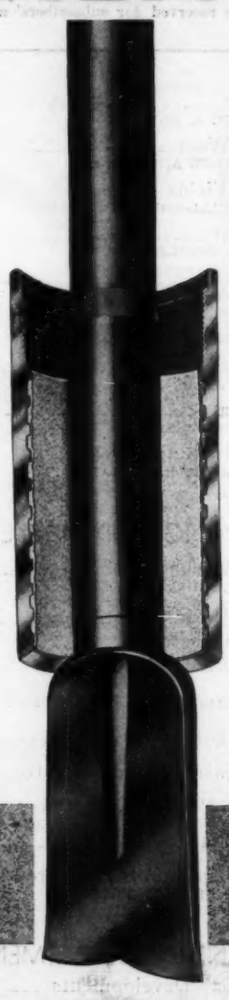

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Firm Dealing With the East Texas Situation Will Relieve Present Uncertainty in Industry

By JAMES McINTYRE

WHILE the gasoline market in the East and in Group 3 is in a seriously unsettled state, and fears of crude cuts continue to depress the morale of the industry hope of better things is held out as the Federal Oil Administration under pressure by the Planning and Coordination Committee exhibits a firmness in its promised action in dealing with the Texas situation.

Outside of East Texas, there is nothing to retard prosperity in the oil business. There are no big new pools in sight. With a 2,500,000-bbl. daily drainage of the established fields, the depletion of reserves in the face of relatively small new production is enormous. If the combined action of the Federal and the Texas governments bring production in East Texas down to its allowable, oil will be the first great industry to attain recovery.

Completions of the past week in the Fitts Pool in Pontotoc County, Oklahoma, and the great interest that has been shown in the general Graben area comprising parts of Pontotoc, Coal and Johnston Counties, gives that large area promise of two or three years of exploration and development work. The area has provoked many differences of opinion among geologists. It is "streaky", but the successful wells are so good they make the area very attractive, notwithstanding the hazards.

The Gulf Coast of Louisiana has a new pool in the Gillis area in Calcasieu Parish. It is producing from sand at 6,760-72 feet. The production thus far reported is small considering the depth, but the discovery well has not been completed. The oil is accompanied by much salt water and the well may be on the edge.

It has been definitely shown by dry holes that the new Houston County, Texas, pool will be small in area. The Van Vleck salt dome pool in Matagorda County, Texas, it is believed, will develop importance when the high gas pressure is relieved. The oil lies at a depth of 7,000 feet or more. The 7,400-acre block on which two oil wells have been drilled is owned by Skelly Oil Co., 75 per cent, and Lenach Corp.. and Atlas Royalty Corp. 12½ per cent each.

The recently discovered Sam Fordyce Field in Hidalgo County, Southwest Texas, had its first disappointment in the past week, a 2,780-foot salt water hole. A second failure looms due west of the first mentioned test. The discovery well was opened in the past week and the production estimates averaged 7,500 bbls. per day.

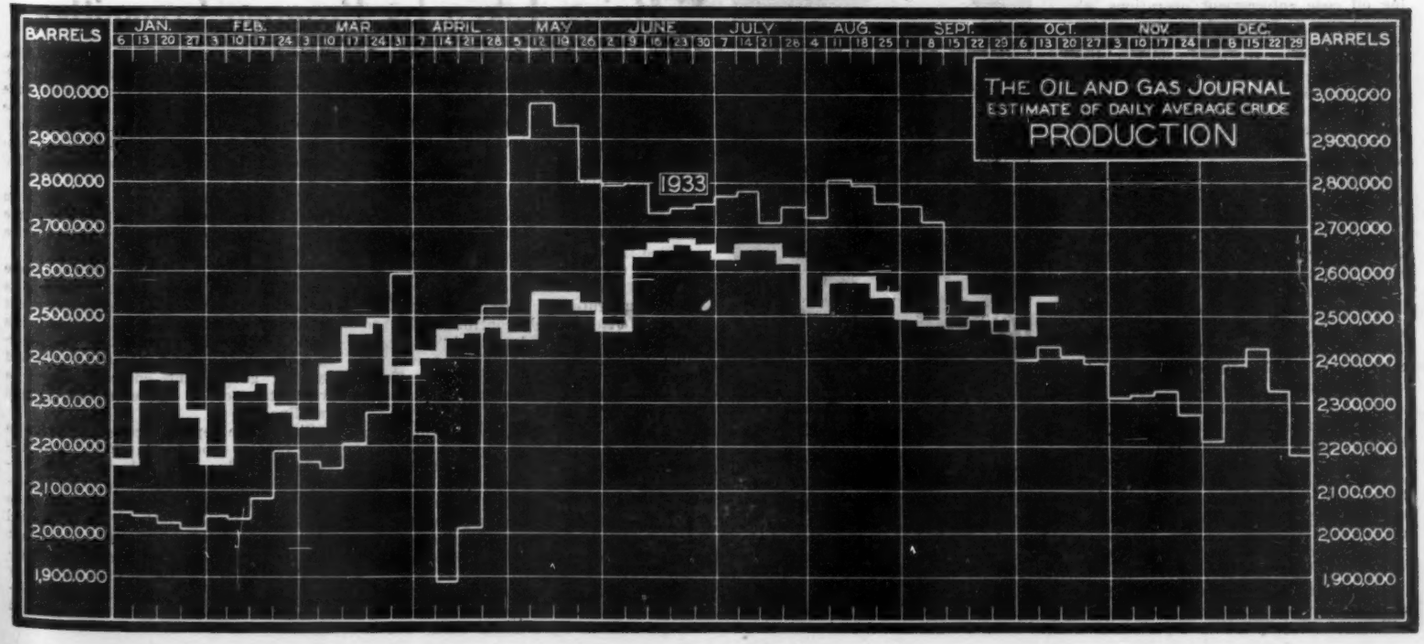
Satisfactory co-operation of oil producers in California has strengthened the proration program in that state. A gratifying general situation exists on the Pacific Coast, and it can be maintained as long as the curtailment program and the marketing agreement are adhered to. Field work is increasing.

Crude Oil Production in the United States

Estimated daily average production for the week ending October 13, and a comparison with previous week and the Federal allowables follow:

	Oct. 13	Federal allowable in October	Oct. 6
Oklahoma—			
Oklahoma City	184,805	.....	126,050
Seminole-St. Louis	93,850	.....	72,025
Remainder of State	234,550	.....	222,700
Total Oklahoma	513,205	457,400	420,775
East Texas—			
Lathrop	198,740	.....	198,124
Kilgore	180,120	.....	179,173
Joiner	151,795	.....	152,400
Total East Texas	530,655	.....	529,697
West Texas	138,773	.....	147,624
North Central Texas	85,048	.....	86,023
Texas Panhandle	53,425	.....	61,705
East Central Texas	44,127	.....	51,176
Gulf Coast—Texas	163,025	.....	178,025
Southwest Texas	57,524	.....	56,227
Total State of Texas	1,072,577	956,100	1,110,567
Kansas	120,575	123,700	120,200
North Louisiana	23,735	.....	23,755
Gulf Coast—Louisiana	76,326	.....	78,850
Total Louisiana	100,061	88,300	102,605
Arkansas	30,645	30,200	30,640
Eastern Fields (except Michigan)	103,000	97,300	103,500
Michigan	30,801	29,000	31,728
Rocky Mountain area	95,960	91,500	97,890
California—			
Santa Fe Springs	37,500	.....	36,750
Long Beach	66,750	.....	58,250
Mountain View	7,000	.....	9,000
Elwood	10,000	.....	8,750
Kettleman Hills	60,750	.....	54,700
Remainder of State	300,000	.....	281,950
Total California	482,000	452,300	450,000
Total United States	2,548,824	2,325,800	2,467,905

Increase, 80,919 Bbls. Daily.



Show Down at Washington Between Enforcement and Crude Price Cut

By HUGH D. MALLON
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Oct. 15.—A conference between Administrator Ickes and Attorney General Cummings, and another between the administrator and the Planning and Coordination Committee climaxed a week of meetings which saw the formulation of a plan of procedure under the code, and a tentative agreement among the members of the committee for concerted action after the expiration of the code.

The result of the conference between the administrator and the Attorney General was a working agreement which assures the fullest co-operation between the departments. L. R. Martineau, of Los Angeles, was appointed a special assistant to the Attorney General, and was given instructions to proceed at once to East Texas with full authority to use his own discretion in connection with instituting suits and prosecutions. He is to be in charge of enforcement of all Federal laws relating to oil in East Texas.

Almost simultaneously it was announced, as forecast in The Oil and Gas Journal last week, that an executive assistant to Administrator Ickes had been appointed, Ralph Horween, formerly in charge of the Chicago office of the Petroleum Administrative Board. He will act as the personal representative of the administrator to keep him advised on what is going on in the industry. His capacity will be on the order of a liaison officer, to co-ordinate the activities of the various boards and committees under the code.

Program Is Presented By P. and C. Committee

As laid down in the program presented to Administrator Ickes by the Planning and Coordination Committee vigorous enforcement of the code is recommended. Administrator Ickes, and representatives of the Department of Justice who attended the conference pledged themselves to such a campaign.

They will concentrate first on enforcing Section 9(c) of the NRA Act, which prohibits the shipment in interstate or foreign commerce of petroleum or petroleum products produced in excess of allowable production. Several cases are now ready and will be filed in the very near future.

To further this program it was recommended by the Planning and Coordination Committee that a Federal Tender Committee be appointed in East Texas to pass upon all shipments of oil intended for interstate shipment or for export.

Another suggestion made by the committee and accepted by Administrator Ickes was that experienced oil men be selected by the administrator to police and enforce the code, particularly in East Texas.

Interstate Compact to Be in Bill Before Congress

Differences of opinion between members of the committee on the subject of Federal legislation affecting the petroleum industry were reconciled at the conference with the administrator. Supporters of the interstate compact plan have agreed to lend their support to legislation along the lines of the late Thomas-Disney bill which failed to pass at the last session of Congress, provided it is changed to provide for the authorization and setting up of interstate compacts.

The suggested changes to be made in the Thomas-Disney bill would authorize any two or more states, under appropriate state legislation to enter into a compact for the restriction of crude oil production, subject to the conditions that the total allowed production shall not be less than the total production demand as determined under the Federal Act. This provision is made so the total national production as set by the Federal agency would not be thrown out of line by the states producing less and causing an under supply.

So long as the production of any state is kept within the compact figure for such state, or, if the state is not signatory to such compact, then within the production demand figure for the state, as established under the Federal Act, no quotas shall be set for the state or for application within the state, but if in any calendar month any state shall exceed its compact figure, or in the absence of a compact, its production demand figure as fixed under the Federal Act, then, upon the order of the President, or with his approval, quotas shall be set for such state and for pools, properties, etc., within the state, as provided in the Federal Act, until the President finds that the necessity for such an order no longer exists, when the discontinuance of this practice will be ordered.

It is recommended that the administrative sections of the Thomas-Disney bill be changed. Originally the Secretary of the Interior was named administrator, with a board to be selected by him composed of seven members, none of whom could be selected from the industry. Any connection with, or interest in, the oil industry would disqualify a prospective appointee to the board. The change suggested would set up the Secretary of the Interior as chairman, with either four or six other members, to be appointed by the President. They must be men experienced in the oil business and otherwise qualified; they must be from oil-producing states, and the appointments must be so distributed that as nearly as may be practicable each principal oil-producing section would be fairly and adequately represented.

In view of the automatic operation of the bill, due to the permissive interstate compact feature, it would ne unnecessary to set a time limit on the duration of the bill. Formation of an interstate compact in which all the producing states were involved would automatically nullify the operation of most of the other functions set out in the bill.

The ratification by the members of the Planning and Coordination Committee of this type of legislation, however, is subject to the formation and completion of a satisfactory draft. Unless a satisfactory bill is drawn up and passed by Congress the members of the committee will oppose it.

Revision of the Code Is Now in Progress

No changes or revisions of the code were suggested to the administrator at this conference, but, it is expected that by November 1 some recommendations to simplify, clarify and improve the code will be forthcoming. The various subcommittees handling the different sub-

(Continued on Page 32)

Executive Assistant to Mr. Ickes Has Had a Widely Varied Experience

Ralph Horween, who, as announced exclusively in The Oil and Gas Journal last week, has been appointed executive assistant to Petroleum Administrator Harold L. Ickes, in charge of co-ordinating oil code enforcement operations, although only 37 years old, has had experience which has made him widely known in varied fields. He first achieved note as a Harvard football player, serving as fullback, his ground-gaining and drop-kicking abilities making him an outstanding star. Soon after the United States entered the World War he joined the Navy, emerging as a junior lieutenant. Returning to his home in Chicago, he associated himself for six years with the Horween Leather Co., then studied chemistry in Germany, returning to enter Harvard law school in 1926, class of 1929. Since his graduation from the latter he has been an attorney in Chicago.

Mr. Horween, before his appointment as executive assistant to the oil administrator, had served as chief of the Chicago office of the Petroleum Administrative Board.

"As chief of the Chicago office of the board," Administrator Ickes said, "Mr. Horween made an enviable reputation in dealing with problems connected with administering the oil code in the Great Lakes and middle western states. His work has been outstanding and his promotion was recommended by the chairman and the vice chairman of the Petroleum Administrative Board.

"As executive assistant to me, Mr. Horween, under my immediate supervision, will act as my personal representative in co-ordinating the activities of the Petroleum Administrative Board, the Petroleum Labor Policy Board and the Oil Enforcement Unit of the Division of Investigations. I feel that his work in this position will improve the efficiency of the oil administration, and that he can keep me advised instantly of the various changing conditions confronting the administration."

RALPH HORWEEN

Poll on Resuming Gasoline Buying Plan Being Taken by Program Committee

WASHINGTON, D. C., Oct. 15.—In order to be in a position to promptly renew the program of stabilization if conditions warrant, the program committee of the Planning and Coordination Committee has urged that major refiners immediately approve by wire that negotiations for new gasoline buying contracts be resumed on or before October 25, if in the judgment of the program committee the following conditions have been met by that date:

1. If the enforcement measures now being instituted in East Texas give assurance of effectively controlling the production of "hot" crude and of "hot" gasoline therefrom, and if as a result the volume of the production of East Texas gasoline can be practically limited to the allocation for that area.

2. If not less than 85 per cent of the number of refiners producing gasoline in East Texas, and if refiners producing not less than 85 per cent of the total allocated gasoline produced in East Texas have recorded with the program committee their willingness to sign the committee's form of contract for all or part of their gasoline production.

3. If the program committee has adequate assurance that the total production of gasoline in East Texas Field will be limited to a maximum of 700,000 bbls. per month throughout November and December, but in no case greater than the allocated gasoline production for those months deemed by the allocating committee to be fair and reasonable in comparison with that of other refinery districts.

4. If the price clause in the term contracts is revised so as to make the price of gasoline fluctuate with the price of crude.

The program committee feels that there should be close co-ordination between its activities and those of the government enforcing agencies, and consequently has fixed October 25 as the date for determining whether or not results achieved by the government enforcing agencies warrant renewing of buying of distress gasoline.

Should the replies received by wire to this inquiry not indicate that a satisfactory number of members of the buying group are willing to continue existing term contracts on the revised basis and to renew negotiations for additional term contract when conditions warrant then the program committee will promptly recommend to all buyers that they avail themselves of the 30-day cancellation clause in the term contracts now in effect.

A Discouraging Game

—Drawn exclusively for The Oil and Gas Journal

Bureau Figures Indicate Trend for Rest of Year

By C. O. WILLSON

The largest withdrawal from crude oil storage of any month this year with a gain in export demand for the principal refinery products over a year ago, were the principal developments shown in the report of the Bureau of Mines released last week covering oil operations in the United States during August.

In the crude oil end, due to a curtailment of supply, stocks were reduced 4,600,000 bbls., the only substantial reduction in inventories that has taken place this year. The August reduction is in contrast to the situation in August last year when production averaged 200,000 bbls. daily greater and more than 9,000,000 bbls. of crude oil were added to storage. Due to this reversal in developments crude oil stocks on August 31 were less than on the same date a year ago for the first time this year. The reduction amounted to 9,107,000 bbls., or 2.5 per cent.

The large decline in August production compared to a year ago also brought about a change in the accumulative figures which for the first time, as summarized in the accompanying table, show a decline for the eight months of this year compared with the same period in 1933. On the demand side the gain in August over August of last year was not as great as the gain in earlier months over corresponding months in 1933, so that the increase for the first eight months has decreased to 4 per cent which com pares with a gain of 4.6 per cent for the first seven months.

Exports Gain

In the refining end the August figures show a somewhat mixed trend. With the exception of gasoline the August domestic demand for the principal refinery products was less than in August of last year. In the case of kerosene, gas oil and fuel oil, and lubricating oils the domestic demand at refineries all showed decreases from August, 1933, in contrast to the situation earlier in the year when large gains were shown in the monthly comparisons. The gain in motor fuel demand was about 3 per cent and this also represents a decline from previous figures when gains over last year as high as 11 per cent have been shown in the monthly reports of the Government.

Demand Continued Favorable

Fortunately gains in exports during August over the same month last year partially or entirely offset this less favorable domestic situation so that he total demand (domestic demand plus exports) continued favorable and for the entire eight months the gains for these refinery products range from 5.5 to 16.8 per cent. Motor fuel exports in August reversed the trend of previous months and showed a 10 per cent gain over August, 1933, but for the entire eight months shipments to foreign countries are 15.1 per cent under 1933.

Kerosene exports in August increased substantially over July with more than a 50 per cent gain over August, 1933. Kerosene from the United States has held its own in foreign markets better than any other refinery product. The old and new crude oil supplies in foreign countries for the most part are not crudes suitable for refining the best grades of kerosene. Several refiners and exporters in this country who have seen their foreign gasoline demand drop more than 60 per cent from the peak with large losses in other products, have been able to maintain their kerosene shipments with an actual gain so far this year over last year of 22 per cent in the export movement.

The export demand for lubricating oils is running slightly ahead of last year. The increase in demand for lubricating oils both in the domestic and export markets is substantially less than it was earlier in the year.

Indicative of the change in the wax situation from a year ago the August domestic shipments from refineries in the United States were only about 40 per cent of August, 1933, with a smaller decline in the case of exports. A year ago wax was being purchased by domestic and foreign buyers in the face of an advancing market. These higher prices starting about the first of this year served to stimulate production and slow up demand at refineries. As a result there has been a steady month to month increase in inventories since the first of the year so that on August 31 they were 39 per cent greater than the same date in 1933.

Considering the July and August data of the Bureau of Mines separately from the reports of the first six months they bear out the statements of those who have predicted that the demand for crude oil and its products in the United States would not show the gain over 1933 the last half of the year that was shown the first half. The July and August figures, however, do not indicate any serious dropping off in total demand for any of the products with at least small gains apparently assured for all principal products over the balance of the year.

Crude Oil and Refinery Situation Summarized — First Eight Months of 1934-1933

Supply and Demand—Crude Oil (Bbls.)

	Total supply	Total demand	Excess Demand	Excess Pct.	Domestic production	Imports	Domestic demand	Exports	Stocks refinable crude August 31
1934, first 8 months	632,181,000	636,737,000	4,536,000	.7	609,286,000	22,895,000	610,071,000	26,666,000	350,838,000
1933, first 8 months	632,481,000	612,251,000	*20,230,000	*3.3	609,135,000	23,346,000	588,678,000	23,573,000	359,945,000
Increase, 1934	†300,000	24,486,000			151,000	†451,000	21,393,000	3,093,000	†9,107,000
Increase, 1934	†.05%	4%			.02%	†1.9%	3.6%	13.1%	†2.5%

Supply and Demand—Refinery Products—Motor Fuel (Bbls.)

	Total supply	Total demand	Excess Demand	Excess Pct.	Domestic production	Imports	Domestic demand	Exports	Stocks August 31
1934, first 8 months	280,618,000	285,570,000	4,952,000	1.7	280,617,000	1,000	268,492,000	17,078,000	49,552,000
1933, first 8 months	269,746,000	270,636,000	890,000	.3	269,736,000	10,000	250,517,000	20,119,000	49,641,000
Increase, 1934	10,872,000	14,934,000			10,881,000	†9,000	17,975,000	†3,041,000	†89,000
Increase, 1934	4%	5.5%			4%	†90%	7.2%	†15.1%	†.2%
Kerosene									
1934, first 8 months	35,007,000	33,996,000	1,011,000	3.0	35,007,000		27,433,000	6,563,000	7,568,000
1933, first 8 months	32,686,000	29,115,000	3,571,000	12.2	32,686,000		23,746,000	5,369,000	8,604,300
Increase, 1934	2,321,000	4,881,000			2,321,000		3,687,000	1,194,000	†1,036,000
Increase, 1934	7.1%	16.8%			7.1%		15.5%	22.2%	†12%
Gas Oil and Fuel Oil									
1934, first 8 months	219,126,000	234,660,000	15,534,000	7.0	216,701,000	2,425,000	216,118,000	18,542,000	118,734,000
1933, first 8 months	209,417,000	215,208,000	5,791,000	2.7	204,092,000	5,325,000	201,841,000	13,367,000	135,321,000
Increase, 1934	9,709,000	19,452,000			12,609,000	†2,900,000	14,277,000	5,175,000	†16,587,000
Increase, 1934	4.6%	9%			6.2%	†54.5%	7.1%	38.7%	†12.3%
Lubricating Oil									
1934, first 8 months	17,686,000	17,875,000	189,000	1.0	17,686,000		12,535,000	5,340,000	6,841,000
1933, first 8 months	15,027,000	16,319,000	1,292,000	8.5	15,027,000		11,041,000	5,278,000	7,402,000
Increase, 1934	2,659,000	1,556,000			2,659,000		1,494,000	62,000	†561,000
Increase, 1934	17.7%	9.5%			17.7%		13.5%	1.2%	†7.6%
Petroleum Wax (Lbs.)									
1934, first 8 months	343,392,000	296,021,000	*47,371,000	*13.8	318,360,000	25,032,000	169,105,000	126,916,000	119,702,000
1933, first 8 months	311,388,000	390,307,000	88,919,000	28.5	294,560,000	16,828,000	223,407,000	166,900,000	86,136,000
Increase, 1934	32,004,000	†94,286,000			23,800,000	8,204,000	†54,302,000	†39,984,000	33,566,000
Increase, 1934	10.3%	†24.2%			8.1%	48.8%	†24.3%	†24%	39%

*Excess supply. †Decrease. Note—Total supply equals domestic production plus imports. Total demand equals domestic demand plus exports. Data on demand for refined products are based on refinery shipments.

Crude Oil Runs to Stills and Total All Oils (Bbls.)

	Total imports‡	Total exports‡	Total crude to stills	Nat. gasoline production	% Gasoline yield from crude oil‡	Total supply all oils*	Total demand all oils*	Stocks all oils August 31
1934, first 8 months	32,246,000	75,874,000	595,174,000	23,485,000	46.4	666,150,000	602,779,000	589,719,000
1933, first 8 months	33,224,000	69,726,000	571,576,000	22,036,000	46.3	665,354,000	567,278,000	620,545,000
Increase, 1934	22,000	6,149,000	23,598,000	1,449,000	.....	796,000	35,501,000	†30,826,000
Increase, 1934	.07%	8.8%	4.1%	6 6%	.....	.12%	6.2%	†5%

*Total all oils includes crude oil, refined products, natural gasoline and benzol. †Decrease. ‡Includes natural gasoline blended at refineries. §Includes crude oil and refinery products. All data based on Bureau of Mines reports.

Petroleum Exchange Discussed as Best Means of Reflecting True Conditions in Oil Industry

By ANDREW M. ROWLEY

Why is it that the petroleum industry is always being threatened by chaos in the face of the fact it has lost less business during the depression than any other industry in the United States, the demand for its chief product—gasoline—during the first eight months of this year being 98 per cent of the all-time peak record for domestic consumption established in 1931?

That question has been asked more, probably, than any other by men engaged in the oil business and those in other lines of industry. Invariably the answer, whether it be made by a prominent oil executive, a close student of statistics, or the man on the street, is preceded by a shrug of the shoulders and then some mention is made of East Texas.

Everyone knows something basically is wrong. He knows consumption this year has been maintained at an exceptionally high level, so much so that during the first seven months of this year domestic gasoline consumption came within 1 per cent of equaling the highest record ever established in the industry and that this consumption this year up to September 1, the latest period for which figures are available, averaged 98 per cent of the peak record made in 1931.

In addition to the maintenance of demand for the industry's chief product, stocks of gasoline and crude oil have been reduced, consumption of the raw and finished products being greater than production and manufacture despite the high rate of both and despite the production of from 70,000 to 125,000 bbls., daily of hot oil in East Texas.

The industry also has been using its reserves of crude oil at a far greater rate than it has been discovering new reserves, it being estimated demand for crude oil in the United States is approximately 540,000,000 bbls. per year more than the quantity being found in the form of new reserves.

With this good and improving statistical position why is it that the bulk of discussion in recent weeks has been about the imminence of a reduction in prices for crude oil? And this talk has not been an idle gesture. Everyone in the industry knows crude oil price reductions are and have been a real threat and only the reluctance of the large buyers to "upset the apple cart" has prevented the postings of lower quotations.

Many refiners have been agitating for lower crude oil prices and they cannot be blamed for so doing. There is no question but that the differential between crude oil and gasoline prices is entirely out of line. Crude oil prices are not too high but gasoline prices are entirely too low and efforts to bring gasoline prices up to a level more in line with costs have failed of accomplishment.

This anomalous condition in the petroleum industry has forced many persons in the business to conclude the basic cause of the trouble is the present method of establishing prices for crude oil and its products. Such a method, it is claimed, is more or less artificial and does not permit fundamentals to determine the true picture.

This conclusion has led a number of conservative thinkers within the oil business to believe the establishment of an oil exchange is the logical answer to the question bothering so many and the sensible solution of the problem which none, heretofore, has seemed to be able to answer.

It certainly seems the time has come for a change in the method of establishing prices for crude oil and probably some products. A free market that is based on supply and demand appears to be the only tenable thesis. Such a market offers many advantages over the present system of having prices posted by different leading companies and a careful study of the subject indicates many benefits to be derived by all branches of the petroleum industry and everyone connected with the business, both small and large.

Many other basic industries in the United States operate with exchanges establishing prices. Within the past month the tobacco industry has established such an exchange to get away from the archaic system of auctioning tobacco. The commodity exchange has been in operation for a sufficiently long period to prove its worth and benefits to those engaged in the copper and other industries. Many are familiar with the operations of the cotton, wheat, corn and other exchanges.

Why not, it has been suggested, an exchange for the petroleum industry where buyers and sellers could transact their businesses to the mutual benefit of all? The eastern section of the oil industry operated under an oil exchange for many years. There are not any greater complications involved in an oil exchange than there are in the operation of exchanges for other industries. There are many grades of tobacco, wheat and cotton but it has been found easy and mutually satisfactory to establish a base grade in each of these businesses.

Oil men, as the result of much work and research, hearings and investigations have determined already a base grade for crude oil and have set this as 36 gravity Mid-Continent crude. These same men have formulated differentials relating to this grade and crude oil in the different fields throughout the United States.

Prices established on an oil exchange would be sound and devoid of artificiality which has kept the oil business in hot water for so long a time. Such prices would bear a true relationship to existing conditions and the industry would be in a position to benefit from its improved statistical position. At the same time chiselers and those whose actions have been responsible largely for present unsettled conditions could be handled more easily.

With the establishment of an oil exchange and the setting of prices based on actual conditions existing in the industry, many oil men claim there would be more incentive upon the part of everyone in every branch of the industry to exert his best effort to stabilize conditions and to eradicate those practices which would affect the basic price structure. In other words, all would meet on a common ground, have common interests and would naturally unite in a common effort to accomplish those things which would be for the best interests of the business as a whole.

Every analysis of the situation emphasizes more and more that the main troubles of the business are based on the question of price.

Views of the Industry Are Desired

Every individual and company engaged in the oil business should be intensely interested in the matter of the suggestion of the establishment of a petroleum exchange to deal in crude oil and certain products. The accompanying article was prepared as a preliminary basis for discussion of the subject. The Oil and Gas Journal is desirous of procuring views of oil men on this question and will be glad to open its columns to a discussion of the matter. This publication is making an investigation of the mechanics of the matter and will be glad to try to answer any questions which may arise in a consideration of the question.

Study of Variations in Reservoir Pressure in the East Texas Field

By RALPH J. SCHILTHUIS and WILLIAM HURST
Research Engineers, Humble Oil & Refining Co.*

The nature of the forces that are important in producing the oil in the East Texas Field and the manner in which these forces are affected by the rate of production have always been problems of outstanding interest. These questions are of great interest to the industry as a whole on account of the economic importance of the East Texas Field and to the engineers in particular on account of the unique character and behavior of the field. Subsurface pressure data throughout the field have been collected systematically so that a quite complete history of the reservoir pressures has been kept as the field has been developed and produced. Subsurface samples of the oil and gas have been taken and these have been examined to obtain data on the physical properties of the reservoir fluids under the actual conditions of temperature and pressure. All of these data have been valuable because they have afforded the basis for a careful study of the means by which the oil is produced. It is the purpose of this discussion first to point out several of the important facts revealed by the data mentioned and then to describe studies that have been made concerning the interpretation of these facts.

Reservoir Pressure Data

The reservoir pressure data on the East Texas Field have shown conclusively that the pressures are readily affected by changes in the rate at which the field is produced. This can well be seen in Figure 1, where the average reservoir pressures obtained from time to time are plotted with the daily production rates and the cumulative production of the field. It is noted that the average reservoir pressure has declined irregularly, depending upon the rate of production, from the estimated original value of 1,625 pounds per square inch to the value of 1,228 pounds per square inch observed for August 11, 1934. The decline in pressure has been more rapid at the higher rates of production than at the lower rates. In contrast, the average reservoir pressure has increased, on several occasions, upon reduction of the withdrawal rates from a high value to a lower value.

The reservoir pressure data have also shown that a definite gradient in pressure has existed across the field from west to east since the beginning of production. The pressures are highest on the west boundary of the field, decreasing gradually to the east edge. The magnitude of this pressure gradient is also influenced by the rate of production, the difference in pressure from west to east becoming greater as the production rate is increased.

Physical Properties of Reservoir Oil

Lindsly,[10] in his investigations on the physical properties of the reservoir oil in the East Texas Field, demonstrated the following facts:

1. The reservoir oil is undersaturated with gas, the saturation pressure being 750 pounds per squire inch gauge. This pressure, which corresponds to the point where gas first starts to escape solution, is several hundred pounds per square inch less than the lowest average pressure that has ever been observed in the East Texas Field.

2. Above the saturation pressure of 140 pounds per square inch, the reservoir oil has a liquid expansibility of 0.098 per cent for each reduction of 100 pounds per square inch in the pressure upon the liquid.

3. The reservoir oil, in being produced to the surface, shrinks, or suffers a net loss in volume of about 20 per cent. The shrinkage is due mainly to liberation of dissolved gas upon reduction in pressure from the saturation pressure to one atmosphere. A small part of the contraction is accounted for, however, by reduction in temperature from the reservoir temperature of 146° F. to the temperature at the surface.

These physical properties of the East Texas reservoir oil have also been investigated and checked, within reasonable limits, in the laboratories of the Humble Oil & Refining Co.

Interpretation of Data

In the foregoing, the most important information concerning the behavior of the reservoir pressures and the physical properties of the reservoir oil in the East Texas Field have been reviewed.

A little reflection on the fact that the reservoir oil is undersaturated will make it evident that the oil body must be acted upon by some extraneous force, which maintains the pressure in excess of the saturation pressure of the oil. If there were no such force, the reservoir pressures would have fallen, rapidly, below 740 pounds per square inch.

Regarding the nature of the extraneous force, it has been suggested[2] that the weight and compressibility of the overlying sediments and rocks supplies the excess pressure. J. O. Lewis[3] has shown that this suggestion is untenable. Both the original and current average reservoir pressures can be explained by water pressure or a water drive acting upon the oil body. The contention that a water drive does act upon the field is compatible with both geological information and the data on reservoir pressures and the physical properties of the reservoir fluids.

Figure 2 is a map of the East Texas area showing the relation between Woodbine formation and the East Texas oil field. The Woodbine formation outcrops in a belt extending northward from McLennan County, Texas, to the Red River Valley and then eastward to the Oklahoma-Arkansas border. The formation dips southeastwardly, pinching out to the south, and finally rises gradually to the east to pinch out against the Sabine uplift and make the reservoir in which water has trapped out to form the East Texas oil field. The field occupies only a small part of the vast Woodbine formation, being located at the approximate center of the Woodbine's eastern boundary. There is sufficient evidence to show that the Woodbine sand is continuous from its outcrop to the East Texas Field and is filled with water. The head of water equal in height to the difference between the surface elevation of the Woodbine's outcrop and the subsea depth of the oil reservoir would exert a static pressure in close agreement with original reservoir pressure. The fact that since production began a gradient in pressure has existed across the field from west to east further substantiates the contention that the field is under water drive and indicates that the water is tending to push the oil body eastward in the reservoir.

Nature of Water Drive

Having pointed out that the oil in the East Texas Field is undoubtedly acted upon by a water drive, it becomes necessary to inquire as to the behavior of the water drive as production goes on.

As soon as production started, the reservoir pressure began to decline below the original value about the wells produced. This lowering of the pressure allowed the oil in the vicinity of the wells to expand and fill the space formerly occupied by the oil removed. As production continued, the lowering of the pressure spread rapidly to the more remote parts of the field on account of the limited expansive power of the remaining undersaturated reservoir oil. It was observed, however, that as more oil was produced the pressures did not decline as rapidly as would be consistent with the expansibility of the remaining undersaturated oil and the quantities of oil removed. This condition indicated that the pressure differential set up between the higher pressure in the water sand to the west and the lowered pressure in the oil reservoir itself had caused water to encroach into the field. Such encroachment of water moved oil ahead of it toward the producing wells, the oil so moved filling the space formerly occupied by oil produced and thus retarding the decline in pressure. There is no doubt that water did encroach into the oil reservoir, for, if the water had not moved in, the expansibility of the undersaturated remaining oil would permit less than 70,000,000 bbls. of production before the reservoir pressure would have been reduced to the saturation pressure of the oil; namely, 740 pounds per square inch. The fact that much larger quantities of oil have been produced without causing such a large decline in pressure proves that the water drive is effective. The data indicate that about 5 per cent of the vacated space has been filled by expansion of oil left in the reservoir, while the remaining 95 per cent has been filled by intrusion of water. As the oil shrinks by 20 per cent upon being produced to the surface, about 1.18 bbls. of water moves into the field for each barrel of oil measured in the stock tanks.

Originally, the approximate western half of the East Texas Field was underlain by water, the water level being at 3,320 feet subsea. It is calculated that to make it possible for the water to have encroached to occupy its share of the space left vacant by the total oil produced up to August 1, 1934, the water level would necessarily have had to rise

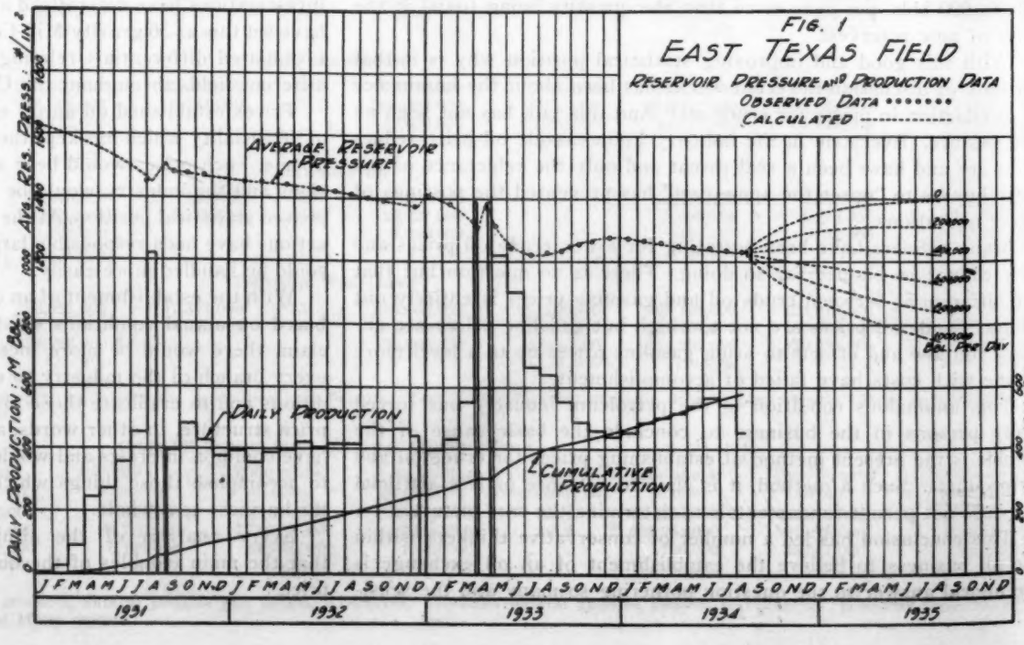


FIG. 1
EAST TEXAS FIELD
RESERVOIR PRESSURE AND PRODUCTION DATA
OBSERVED DATA
CALCULATED
AVERAGE RESERVOIR PRESSURE
DAILY PRODUCTION
CUMULATIVE PRODUCTION
AVG. RES. PRESS.: #/IN.²
DAILY PRODUCTION: M BBL.
CUMULATIVE PROD.: MM BBL.
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1931
1932
1933
1934
1935

*Before Petroleum Division, A.I.M.E., at Tulsa, October 12, 1934.
Authors' title: "Variations in Reservoir Pressure in the East Texas Field."
[10]References at the end of the paper.

10 feet, assuming that the sand flooded with water still retains 25 per cent of its original store of oil and that the water rose absolutely uniformly. There are data to indicate that the water level has not risen to this extent on the western or water edge of the field. It should be pointed out, however, that these data are undoubtedly misleading. As water underlies the western half of the field and as the greater portion of the total oil produced has been taken from the central portion of the field, the water has, in all probability, risen much higher toward the middle of the field than on the western edge. This uneven rise of the water level could easily have occurred without being detected on account of the facts that the oil section becomes thicker toward the longitudinal center of the field and that nearly all wells penetrate only two-thirds of the distance between the top of the sand and the water level. As evidence to support this reasoning, it is called to mind that there are a number of normal depth wells, slightly to the east of the field's longitudinal center, making water. The bottoms of these wells are as much as 10 to 70 feet above the original water table, indicating that the water level certainly could have risen enough, in an uneven manner, to agree with the total water encroachment required to fill all the space formerly occupied by the oil that has been produced.

Mechanism of Water Drive by Expansibility of Water

There are but two methods by which water may move into the East Texas reservoir as oil is produced. The first possibility is that water enters the Woodbine formation at its outcrop and flows through the entire sand body to the oil field. The second possibility is that the flow of water is supplied by virtue of the expansive power of the water contained in the Woodbine sand. Consideration of the first mentioned method has shown that the flow of water through the sand, over the great distance between the outcrop and the oil reservoir, would entail such great friction loss and hence such large pressure drops that the water could not be supplied at the required rate under the existing pressure in the East Texas Field. Concerning the second possible method, it would probably be concluded at first thought that the effect of the slight expansibility of water would be negligible. However, when the expansion of the tremendous quantities of water contained in the vast expanse of Woodbine sand is considered, relative to the quantities of water moving into the East Texas Field, it is realized that the effect is important and must certainly be taken into account. The Woodbine sand is estimated to contain roughly 4,000,000,000,000 bbls. of water. It is estimated that, if the pressure on such an enormous quantity of water were lowered by only 50 pounds per square inch, it would expand and supply enough excess water to fill the space vacated by all of the oil produced from the East Texas Field to date. This example is given only to illustrate the magnitude of the amount of excess water which can be supplied by expansion of so large a body of water as is contained in the Woodbine sand. It is not at all meant to imply that the pressure is actually lowered over the entire body of water by a constant amount.

The mechanism by which water flows into the East Texas Field on account of its expansibility, is as follows: When production first started, the pressure in the reservoir and on the water adjacent to the oil body on the west was lowered. This allowed the water to expand and drive oil eastward to fill space vacated by oil produced. As production has continued, the pressures have been progressively lowered and the water has been caused to flow toward the field from greater and greater distances out in the Woodbine sand. This type of flow is essentially the same as that by which oil and gas flow to a well bore[4, 5] from the surrounding formation when the pressure at the well is lowered.

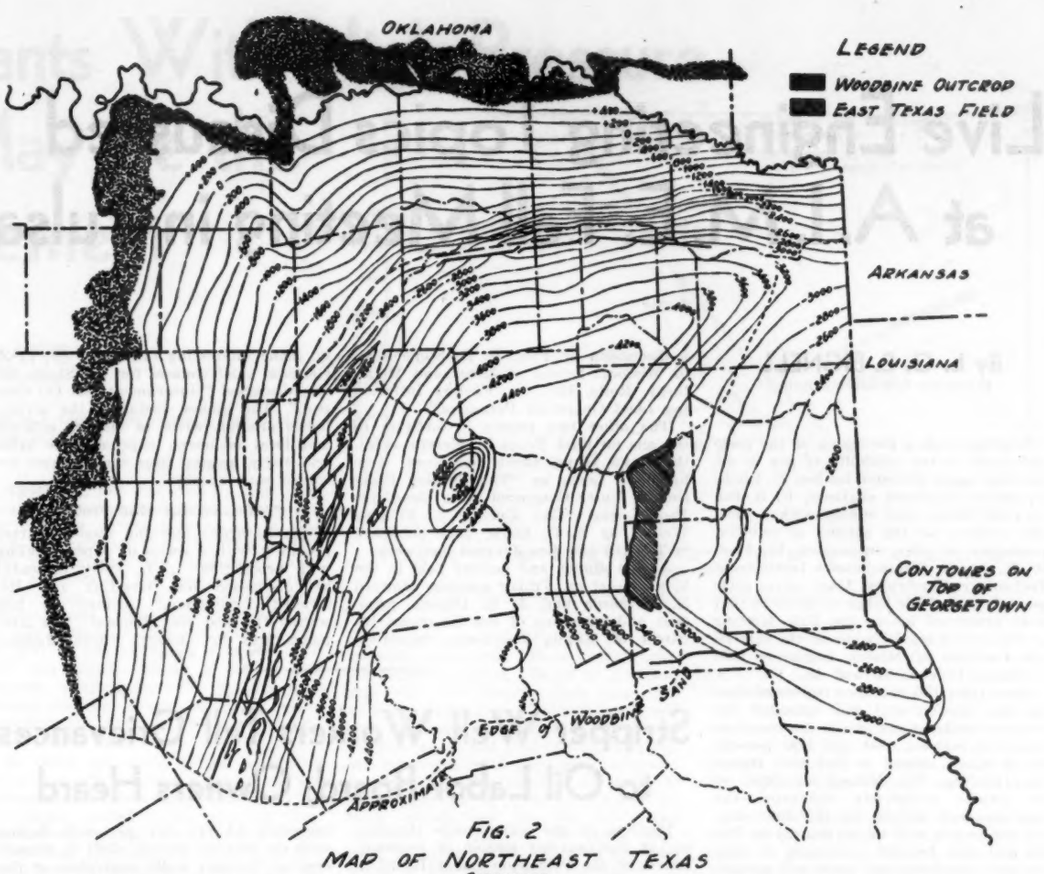


FIG. 2
MAP OF NORTHEAST TEXAS
SHOWING
STRUCTURE CONTOURS ON TOP OF THE WOODBINE SAND

Mathematical Analysis of East Texas Water Drive

In order to quantitatively evaluate the importance of the water drive on the East Texas Field, a mathematical analysis of the described mechanism or type of flow by which water moves into the reservoir has been made. This analysis has been submitted for publication by William Hurst. To develop the analysis, it was necessary to make certain assumptions, as follows:

1. The permeability, porosity and thickness of the Woodbine sand are uniform and the formation is horizontal throughout that portion of the sand influenced by production from the field.

2. The velocity of fluid flow at any point is directly proportional to the pressure drop per unit length along the path of flow.

3. The fluids expand as pressure is lowered, the volume of the fluids increasing a certain definite percentage for each pound per square inch decrease in pressure.

With the foregoing assumptions, the analysis was based upon a material balance of the fluids flowing through a very small element of the sand formation toward the East Texas Field, which is represented in Figure 3 as the rectangle of length 2a and width h located at the origin of rectangular co-ordinates in an infinitely large water filled sand reservoir. The material balance is expressed by the differential equation:*

$$\left[\frac{\partial^2 p}{\partial x^2}+\frac{\partial^2 p}{\partial y^2}\right]\frac{K}{\phi c}=\frac{\partial p}{\partial \theta}$$

The general solution of this equation for the East Texas water drive problem is:*

$$p=\frac{1}{4\pi\, oc^2\theta}\int_{-\infty}^{\infty}\int_{-\infty}^{\infty} f(x',y')e^{-\frac{(x-x')^2+(y-y')^2}{4\,oc^2\theta}}\,dx'\,dy'$$

The particular solution, for the East Texas problem, is:

$$0.422\frac{HK}{C}\left[1-e^{-144c(P_R-P_F)}\right]=\int_{\theta_1}^{\theta} q_F(\theta')\,d\left[\log_{10}\left(\frac{oc^2(\theta-\theta')}{a^2}\right)\right]\int_0^1 e^{-\frac{(x'a)^2}{4\,oc^2(\theta-\theta')}}\,dx'+1.54q_F(\theta)\sqrt{\frac{oc^2(\theta-\theta_1)}{a^2}}$$

The final equation expresses the variations in average reservoir pressure with the oil production obtained over a certain period of time. The constants in the equation, which express the physical properties of the fluids in the Woodbine sand as well as the thickness and properties of the sand itself, are as follows:

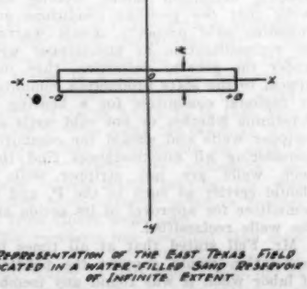
- c = expansibility of fluids in the Woodbine sand.
- H = effective thickness of Woodbine sand body.
- K = average permeability of Woodbine sand body.
- θ = porosity of Woodbine sand body.

In order to apply the ideal analysis to the actual East Texas water-drive problem, it was expected that it would be necessary to make certain allowances and corrections for those discrepancies by which the ideal analysis does not fit the actual problem. This was necessary, but it was found that corrosion for the irregularities could readily be made by adjusting only one constant; namely, the value for the expansibility of the water in the Woodbine sand. The values used for the constants are:

- c = 2.75 × 10^{-7} ft.^{2} per ft.^{2} per lb. per sq. ft.
- H = 200 ft.
- K = 0.035 ft.^{2} of fluids flowing per day per sq. ft. of cross section per lb. of sq. ft. pressure differential per ft. length of flow.
- θ = 25 per cent.

The values given for the thickness, permeability, and porosity of the sand are the best estimates that could be arrived at from such laboratory and field data as were available. It is pointed out that by "thickness of sand" is not meant that of the oil reservoir itself, but rather an average thickness of that portion of the water-filled Woodbine sand influenced by production from the field. It is a known fact that the Woodbine sand increases in thickness considerably to the west of the field. The constants for permeability and porosity have been taken from laboratory determinations on core samples. The adjusted constant used for

(Continued on Page 51)



REPRESENTATION OF THE EAST TEXAS FIELD LOCATED IN A WATER-FILLED SAND RESERVOIR OF INFINITE EXTENT

FIG. 3

*For definition of symbols, see table of nomenclature at end of paper.

Live Engineering Topics Discussed at A. I. M. E. Fall Meeting in Tulsa

By L. G. E. BIGNELL
Petroleum Engineering Editor

Starting with a discussion of the progress made in the solubility of gas in oil, the first paper prepared by Ben E. Lindsly, senior petroleum engineer, U. S. Bureau of Mines, and ending with a most able address on the subject of colloidal properties of clay suspension by Prof. W. K. Lewis, Massachusetts Institute of Technology, Cambridge, Mass., gives some general idea of the range of subjects that were presented before the Fall Meeting of the Petroleum Division of the American Institute of Mining Engineers held in Tulsa, October 12 and 13.

More than 175 members registered during the session and 115 attended the banquet Friday night, while the meetings attracted between 200 and 300 persons all of whom seemed to feel well repaid for attending. The demand for copies of the papers completely exhausted the mimeographed supply on the first day, but the papers will all be printed in The Oil and Gas Journal as rapidly as they are made available and space will permit.

Anything that has to do with East Texas Field is still of much interest to attendants of meetings held by technical societies, and the paper presented by Ralph J. Schilthuis and William Hurst, engineers, with Humble Oil & Refining Co., entitled "Variations in Reservoir Pressure in the East Texas Field," and printed elsewhere in this issue of The Oil and Gas Journal, was no exception to the rule. The conclusions presented by the authors were closely followed by the listeners and much discussion followed.

Another outstanding paper was one prepared by E. V. Foran, Sidney Judson, W. A. Schaeffer, Jr., and H. D. Easton, Jr., on "Estimation of Petroleum Reserves," dealing with conditions in sand fields. Discussion following the presentation by Mr. Schaeffer, indicated the interest in this subject.

The program was divided into four parts with the papers on solubility of gas in oil presented at the first technical session on Friday morning. In addition to the paper by Mr. Lindsly, three other papers were read. D. L. Katz, Phillips Petroleum Co., Bartlesville, Okla., discussed "Effect of Gas Liberation on Crude Oil Properties," Alexander B. Morris, consulting engineer, Tulsa, considered the "Economic Aspects of Solubility Investigations," and Charles Bedford, Stanolind Oil & Gas Co., engineering department, read a paper prepared by Cecil J. May, Anglo-Persian Oil Co., Persia, on "Efficiencies of Flowing Wells."

International Aspect

This paper by Mr. May together with a paper by J. Versluys, professor at the University of Amsterdam, Holland, and adviser to the Bataafsche Petroleum Maatschappij, The Hague, Holland, entitled "Energy Relationships in Oil-Bearing Formations," read by Wallace Collins, engineer, Shell Petroleum Corp., Tulsa, gave an international touch to this meeting. These papers added much to the discussion of the respective subjects as they covered in part the views of European engineers and gave some insight into practices in foreign fields.

The Friday afternoon session in addition to Professor Versluys' paper heard a discussion by Prof. E. A. Stephenson, of Missouri School of Mines and Metallurgy, Rolla, Mo., on "Factors Influencing Ideal Operating Pressures."

The other two papers in addition to the one on East Texas by Messrs. Schilthuis and Hurst above mentioned, were by J. O. Lewis on "The Spacing Problem in Water Compared With Gas-Drive Pools," and "Gas Energy in Flowing Wells," by S. F. Shaw, both published in The Oil and Gas Journal last week.

At the dinner and smoker held in the Mayo Hotel on Friday evening, Howard N. Eavenson and A. B. Parson, president and secretary of the American Institute of Mining Engineers, respectively, made interesting talks, and W. P. Z. German, chief counsel for the Skelly Oil Co., discussed "Government and Oil Control." The diners, including the several ladies present, wives of visiting officials and local members, enjoyed these talks immensely judging from the applause accorded each speaker.

Production and Mud Problems

The Saturday morning session started promptly with a series of papers dealing with production. L. L. Foley presented his discussion on "Gas-Lift and Restricted Production," printed in last week's Oil and Gas Journal. The next paper was by Messrs. Foran, Judson, Schaeffer and Easton, mentioned above. R. D. Wyckoff, Gulf Research and Development Corp., Pittsburgh, Pa., read a paper prepared by himself and M. Muskat, on "An Approximate Theory of Water-Coning Phenomena."

Elsewhere in this issue of the Journal will be found the paper next presented by B. B. Westcott, also with Gulf Research and Development Corp., on "Developments in Manufacture of Sucker Rods." Dr. F. B. Plummer presented a paper on "A New Multiple Permeability Apparatus," prepared by Doctor Plummer, Sidon Harris and John Pedigo, all with the Department of Petroleum Engineering, University of Texas, Austin, Tex., and published by the A.I.M.E. as Tech. Pub. 578.

After time out for lunch the final session on muds and cements started at 2 o'clock Saturday afternoon. The first paper was by John Franklin Dodge, professor, University of Southern California, Los Angeles, Calif., and A. B. Frische, laboratory worker, Baroid Sales Co., Los Angeles, Calif., on "Effect of High Pressures and Temperatures on Rotary Drilling Mud," followed by C. P. Parsons, Halliburton Oil Well Cementing Co., Duncan, Okla., discussion "Mud and Cement Practice in Running Casing in Deep Wells."

The last two papers on the program were by W. H. Burke, Shell Petroleum Corp., Tulsa, on a "Study of Some Physical Properties of Rotary Muds," and W. K. Lewis, on "Colloidal Properties of Clay Suspension." Lombard Squires, also of M. I. T., assisted Professor Lewis in preparing some of the graphs and data for his paper.

As the papers have been or will be published in full as soon as available and space will permit, no attempt is made at this time to discuss them. Many points of interest were brought out in the discussions of the papers from the floor. In general the facts as presented were accepted but there was some inclination on the part of some members and guests present to ask questions of some special phases of the problems under discussion.

Everyone present seemed well pleased with the meeting and in closing a vote of thanks was tendered Vice Chariman Harry H. Power, and members of the meeting committee. H. D. Wilde, Jr., chairman of the Petroleum Division, opened and closed the meeting with local and visiting members serving as chairmen for the daily sessions.

The nominating committee for the Petroleum Division met during the meeting to discuss candidates for next year's offices but will make no report until official ballots are sent out at the end of the year.

DR. H. D. WILDE, JR.
Chairman, Petroleum Division, A.I.M.E.
Research Department, Humble Oil & Refining Co., Houston, Tex.

Stripper Well Workers Tell Grievances to Oil Labor Board; Owners Heard

Decision on the controversies thrashed out at the four-day session of representatives of the Petroleum Labor Board in Tulsa will be made public some time this month. The meetings closed Saturday, October 13.

The first day was devoted to hearing complaints of rig builders. The workers claimed that a lower rate of wages existed in Oklahoma and Kansas than in Texas. They characterized the larger employers as "chain store" contractors and said the smaller contractors paid more wages. The minimum scale in Texas and Louisiana is $1.25 and $1.50 per hour for crew labor and foremen respectively, while in Kansas and Oklahoma it is $1 and $1.25, according to the workers. The average number of days worked during the present depressed condition of the oil business is nine days or less per month, according to the men.

The sessions at which the stripper well owners and employes were heard were lively affairs. One of the first complaints filed by the workers was the indefinite wording of the stripper well definition. They claimed that some operators placed their wells under the stripper classification and managed to evade labor code provisions. The workers charged that the producers complained against were enabled to lengthen work days and weeks and to abolish jobs that had paid reasonable wages. They presented witnesses in an endeavor to prove their claims.

Ask for Redefinition

The workers asked for a redefinition of stripper wells. Section 1 or Article 2 of the code thus defines them:

"The wells in any group of wells, upon a single lease or group of leases within a single pool, operated by the same pumper or pumpers, and which do not return in aggregate gross income from the working interest over a six months' period (said period to begin April 1 and on October 1 of each year), an amount in excess of 40 cents per day per 100 feet in aggregate depth of the wells in such group are declared to be 'stripper wells.'

Caused Unemployment

"Any such group of wells as above described, which do not return from the working interest an average gross income exceeding $4 per day per well during such six months' period, shall be considered as 'stripper wells' regardless of the average depth of such wells."

The workers, through their union representatives, ask that the definition be as follows:

"Stripper wells are determined to be that type of operation isolated so as to make relief impracticable; provided, however, that where the total operation with reference to individual ownership is such that the commercial value of production is not sufficient to maintain ordinary operations, that in these cases the operator may apply to the petroleum administrator for relief, relief to be granted solely upon the financial inability of the operator to maintain ordinary operations."

The workers presented a lot of evidence to show that men had lost their jobs, or had their wages reduced, or had been demoted, or were obliged to work longer hours under the interpretation that some companies had placed on the code and on what constituted stripper wells.

The Well Owners' Side

Harold B. Fell, executive vice president of the National Stripper Well association, objected to any change in the definition of the code as it referred to stripper wells.

"This organization is opposed to any alteration of this definition," Mr. Fell said. "The definition provides for adequate protection of employes in a provision that should employes on any well or group of wells feel that while the specific definition might include such wells that the peculiar conditions surrounding said property should warrant its reclassification as nonstripper wells under the general definition, they may appeal to the state production committee or regional committee for a hearing to determine whether or not said wells are stripper wells and should the committee considering all circumstances find that such wells are not stripper wells it should certify as such to the P. and C. committee for approval of its action and the wells reclassified."

Mr. Fell stated that at all times his association would support the petitions of labor when it was found any member

(Continued on Page 51)

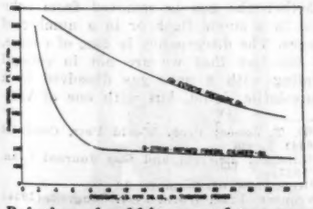
Light Lubricants With High Pressure Properties May Be the Next Requirement

By O. L. MAAG
The Timken Roller Bearing Co.*

Lubricants for industrial antifriction bearing applications include the following types: lime soap, soda soap, aluminum stearate, lead base and mixed base greases, together with oils of various degrees of refinement ranging from the light bodied non-viscous oils to the heavy cylinder stocks. These lubricants take care of practically all types of bearings. There are, however, a number of applications which are heavily loaded or where the speeds are such that a new kind of lubricant, such as the extreme pressure type which has come to the fore during the last few years, should be used. These "alloyed lubricants" serve a definite type of service in the lubrication field just as alloy steels do in modern industry.

Extreme pressure properties may be imparted to either oils or greases and there are on the market today extreme pressure greases of practically all types, and extreme pressure oils covering the range of viscosities used for lubricating various bearings in service. Lime soap greases, which are usually the cheapest ones to compound, have the widest use. These products, as well as those compounded with aluminum stearate, are used in units where water might be encountered. They do not, however, have as high melting points as soda soap greases, and their use is usually confined to the lower temperature operating conditions.

When subjected to high operating temperatures, and as a rule with higher operating speeds, a soda soap lubricant is usually preferable. Many greases



Relation of rubbing speed to pressure before scuffing starts or excessive abrasion occurs

have the disadvantage that, with the higher operating temperatures encountered on higher speed units, there is a marked tendency for the lubricants to become thin. The centrifugal force created by the higher speed of the bearings has a tendency to throw out the oil. After cooling, a layer of heavy soap is found in the bottom of the bearing housings, the oil often having drained out through the bearing closures.

Soda soap greases as a rule will stand up better under high temperatures and high speed conditions than lime soap products, although it must be kept in mind that there is much in the art of compounding these lubricants to give them the desired properties in regard to stability in storage and in service. Aluminum stearate greases will usually return to their original consistency even if they are heated considerably above their melting point. This property cannot as a rule be imparted to lime or soda soap greases.

*Presented before meeting of National Association of Lubricating Grease Manufacturers, Chicago, October 16-17.

Rocker Arm Grease

Apparently for this reasen aluminum stearate greases are used extensively for airplane rocker arm units. It has been the experience of the Timken Co. that such greases are superior to soda soap products for this service. The usual specification calls for a grease compounded from a well refined cylinder oil of 150 seconds to 200 seconds viscosity at 210° F. and aluminum stearate. We feel that cylinder stocks of 600 to 800 seconds viscosity at 210° F. plus aluminum stearate should be given more consideration for use in grease lubricated rocker arms.

In order to obtain better conditions for rocker arm bearings, a circulating oil system would prove highly beneficial. By circulating cooled crank case oil very much lower bearing temperatures would result, and with lower temperatures less oxidation and breaking down of the oil would occur. It is realized that the airplane builder will hesitate to increase the weight of his engines. However, since he is today building engines of greater horsepower, thus creating more heat, it is possible that he will be required to dissipate some of the additional heat by circulating cooled oil.

Most greases of tomorrow will undoubtedly be of the extreme pressure type. Many steel mill applications which are now on antifriction bearings will operate successfully with the average greases that do not contain extreme pressure properties. However, there are a number of units on which the extreme pressure greases are necessary, due to the higher speeds and increased loads which are encountered today.

In some of the applications where past experience indicates that extreme pressure greases are not necessary, they have been used without any harmful effects. Therefore, in order to be on the safe side the Timken Co. has made it a practice to recommend extreme pressure greases entirely for this service.

Roll Neck Greases

The grease which is used on roll necks of steel mill applications should usually be water-repellent. Good success has been reported with lime-lead soap-sulphur products, as well as with lime soap sulphurized base and lime soap-sulphur-chloride base.

Many greases used for roll neck plain bearings are compounded from heavy black oils, soaps, and various percentages of inorganic fillers, such as graphite, lime, talc, mica, zinc oxide, etc. The inorganic fillers serve to polish the bearings, giving in a short time well run-in bearing surfaces. However, the disadvantage of these products is that they continue to wear away the bearings, with the result that replacements are usually quite high. There are numerous instances where better bearing life was obtained when extreme pressure greases free from fillers were used.

This company has specified that steel mill greases for use with their bearings should carry a minimum load of 33 pounds on the Timken lubricant tester,

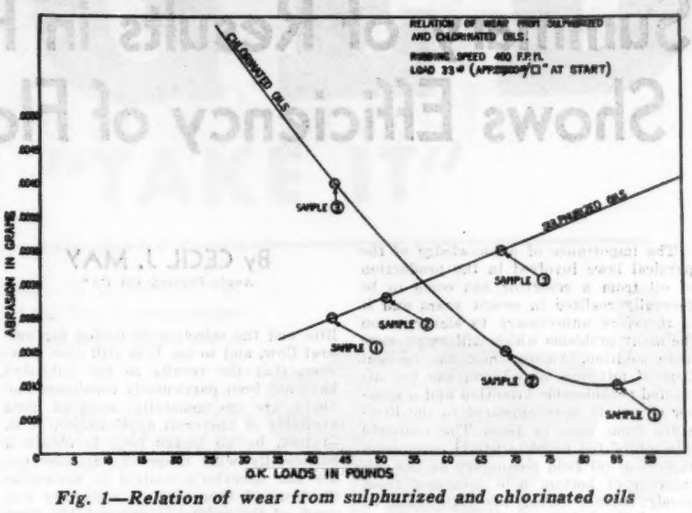


Fig. 1—Relation of wear from sulphurized and chlorinated oils

and be of proper consistency for local operating conditions. Three consistencies are usually required. Based on practical experience, the company feels that a lubricant carrying a 33-pound load will give no trouble in the field.

Often gears and anti-friction bearings are lubricated with the same lubricant. In this case, the mineral oil which is satisfactory for the gears is usually entirely satisfactory for the antifriction bearings. In quite a few cases, however, in order to take care of the gear units, it has been found necessary for good operation to use an extreme pressure lubricant of approximately 90 to 150 seconds viscosity at 210° F. These lubricants should carry a minimum load of 33 pounds on the Timken lubricant tested. The types of extreme pressure lubricants with which the Timken company has had success on these units are those having a leap soap sulphur base, a chlorinated sulphur base, and the straight chlorinated base products.

For table rolls, etc., encountered in mills and factories, the type of lubricant is largely dependent on the design of the closures. If the closures are tight, fluid oils are entirely satisfactory. As the frictional loads are lower with oil lubrication when this type of lubricant can be used the company prefers to recommend it.

High Speed Applications

For high speed applications such as electric motors, high speed spindles, etc., designed for grease lubrication, best success has been had with soda soap products, etc. This type of grease does not separate at the usual operating speeds and temperatures as do the lime soap greases, resulting in better lubrication and much longer bearing life.

The type of soda soap grease which has given best service with Timken bearings has been the short fiber, smooth texture product. These greases do not have the same tendency to channel as do the somewhat stringy fibrous products, and their lubricating action seems to be similar to that of the lime soap greases. The channeling and poor lubricating ability of the stringy fibrous greases seem to be more pronounced under low temperature operating conditions. The smooth textured soap greases which have given best results for average service have been those compounded with refined oils of from 200 to 600 seconds viscosity at 100° F.

Some of these soda products have a tendency to become quite stringy on being worked, while others become more smooth. In our experience those with a tendency to become smoother give best results in service. We cannot, at this time, enlighten you as to the cause of this phenomenon. Perhaps some manufacturer has the answer and will be willing to tell how to overcome it. Recently, two grades of a grease made by a certain company were tested in our laboratory. One had a tendency to string out on working while the other became more smooth. Possibly a slight variation in the acidity or alkalinity may be the answer.

Industrial machinery frequently includes high speed units in which oil lubrication is desirable. Usually these units are comparatively lightly loaded. However, high speeds often bring about conditions where overheating is encountered, at least until after the bearings are well run in. In such units well refined mineral oils are usually satisfactory. A number of cases, however, have been encountered where on new installations of bearings there was an overloaded condition. In such cases Timken practice has been to go to the use of an extreme pressure oil for a running-in lubricant, merely adding the extreme pressure base oil to the mineral oil. Usually the one charge of extreme pressure oil is sufficient to last the machine for the run-in period, after which straight mineral oils are entirely satisfactory.

Circulating Oil System

There are a number of applications where circulating oil systems are desired, such as on gear drives, and the bearings connected with them in mills or other industrial units. The following advantages may be attributed to circulating oil systems:

1. Ample lubrication.
2. The circulation of the oil through the bearings has a cleansing action, washing out any foreign matter that might be present.
3. There is no churning of the lubricant, hence, with the minimum amount of lubricant present, lower operating temperatures are generally secured.
4. With a circulating system it is possible to provide for settling and filtering the lubricant. In case the lubricant has a tendency to become warm, it is possible to cool it separately, thus keeping the system supplied at all times with clean, cool lubricant.
5. The cooler operating conditions will reduce the oxidation or breaking down of the lubricant and thus increase its life.

For example, a circulating oil system is desirable for lubricating the dryer rolls of paper mills. Since the dryers are heated with steam under pressure, the bearings will always be quite warm, and as it is almost impossible to keep paper dust and condensed steam from getting into the bearing housings, the

(Continued on Page 51)

Summary of Results in Persian Field Shows Efficiency of Flowing Wells

By CECIL J. MAY
Anglo-Persian Oil Co.*

The importance of a knowledge of the physical laws involved in the production of oil from a reservoir has come to be generally realized in recent years and it is therefore unnecessary to elaborate on the many problems which still await complete solution. Among them the vertical flow of mixtures of oil and gas has attracted considerable attention and a number of papers have appeared in the literature from time to time. The complete solution of the problem would cover such aspects of oil field technology as the calculation of bottom hole pressures from purely surface data; the estimation of natural flowing lives; the design of gas lifts and the selection of tubing for natural flow, and so on. It is still true, however, that the results so far published have not been particularly consistent and there are no generally accepted data available of universal applicability. It is, in fact, by no means easy to obtain a sufficiently wide range of variables under the operator's control to determine the laws of flow without ambiguity and much of the published research has been directed towards the solution of the specific problems of individual fields representing only a partial treatment of the whole subject. It was with a similar object that work was commenced on the Masjid-i-Sulaiman Field of the Anglo-Persian Oil Co. towards the end of 1930 and has since continued as opportunity offered.

It is of course realized that the results obtained cannot necessarily be applied elsewhere without modification and, in some cases, considerable extension. At the same time conditions in this field are somewhat unusual in allowing certain aspects of the problem to be isolated and examined without the disturbing effects of a large number of independent or partially independent variables. For example, since the field is under unit control, it is possible to maintain steady conditions on any particular well over long periods. Moreover, the structure of the limestone reservoir is such that the gas-oil ratio for a given well is sensibly constant over very wide ranges of production rates, and in many cases the bottom hole differential pressure is negligibly small even at rates of flow of 10,000 to 20,000 bbls. or more per day. It is possible therefore to study experimentally, but on the full scale, flow in wells with a fluid of unvarying composition over the full range of pressures available in the field. Many of the experimental results with a theoretical discussion, have already been published[1], but it is felt that a satisfactory solution of this simple form of the problem might be of value in correlating results obtained under more complicated conditions, and it is rather from this point of view that the present paper is written.

*Before Petroleum Division, A.I.M.E., at Tulsa, October 12, 1934.

[1]May and Laird; Jnl. Inst. Petr. Tech. (1934) 214.

General Equation of Flow

In the paper by May and Laird (footnote 1), the general equation of flow was given in the form:

$$144\ v\,dp = dx + \frac{vw^2\,dv}{g\,A^2} + \frac{144\left(v - \frac{1}{\rho}\right)dp}{\frac{w}{v - \frac{}{Ab}} + 1} + \frac{4kv^2w^2\,dx}{gDA^2}$$

where the various symbols have the following meanings:

- dx = small increment in height in well, feet.
- dp = corresponding small change in pressure, pounds per square inch.
- D = casing diameter, feet.
- A = casing area, square feet.
- w = weight of total fluid (i.e., oil plus associated gas), passing through well per second, pound per second.
- ρ = density of oil, pounds per cubic foot.
- v = specific volume of total fluid at pressure under consideration, cubic feet per pound.
- b = velocity of slip between gas and oil.
- k = friction factor.

From its method of derivation (of which limits of space do not permit the republication) this formula should be applicable to all conditions of flow, its numerical computation requiring a knowledge of the physical properties of the fluid and of two more or less arbitrary factors.

Implied in this formula are the properties of the fluid which are effective in determining flow. The important properties of the oil itself are the density, viscosity and surface tension, all of which increase as the pressure falls in the well and gas comes out of solution.[3, 4] Our results tend to show that this increase is unimportant as far as calculations on any one well are concerned, but it does not follow that oils of very different basic physical properties will behave in precisely the same way with regard for example to slippage.

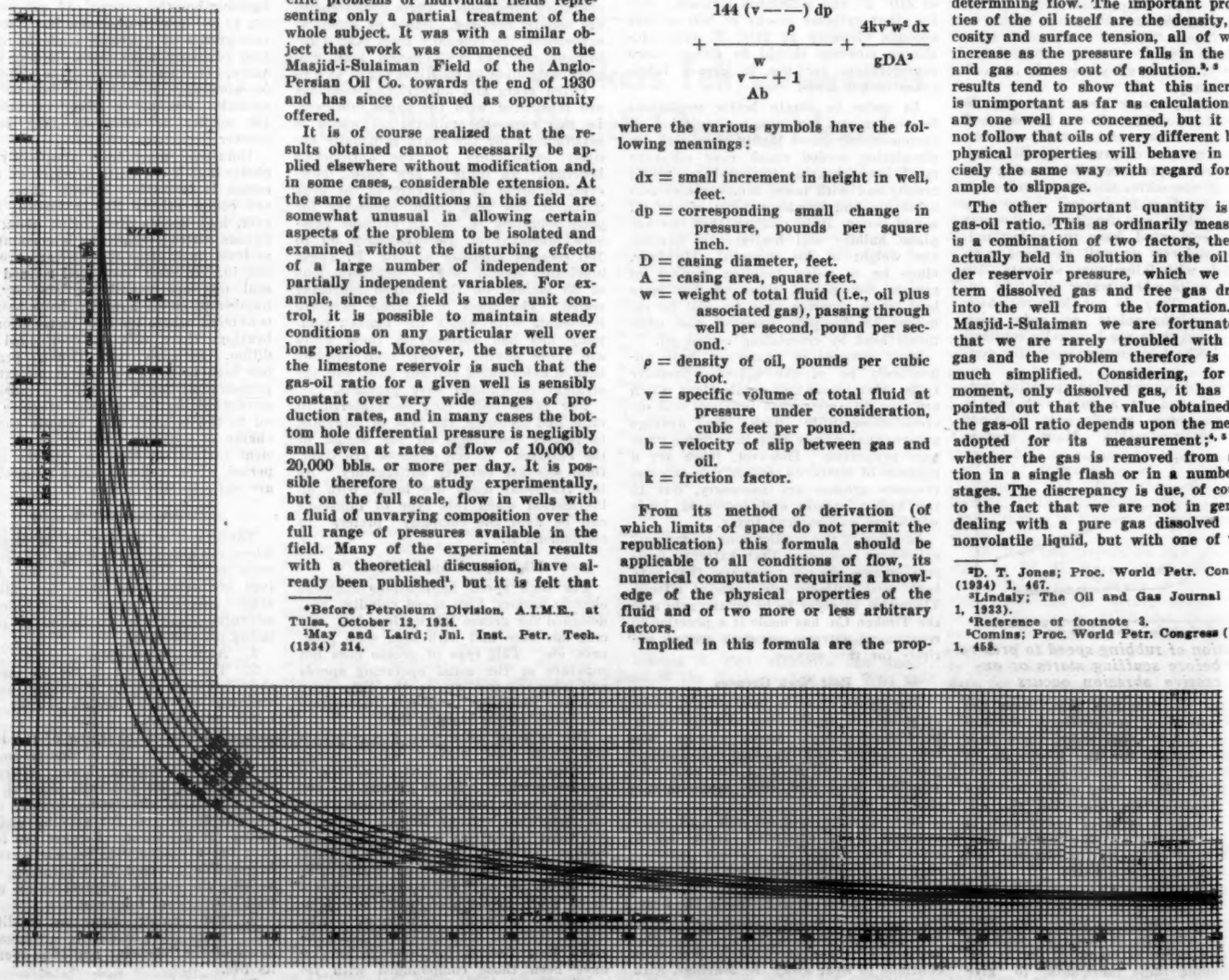
The other important quantity is the gas-oil ratio. This as ordinarily measured is a combination of two factors, the gas actually held in solution in the oil under reservoir pressure, which we may term dissolved gas and free gas drawn into the well from the formation. In Masjid-i-Sulaiman we are fortunate in that we are rarely troubled with free gas and the problem therefore is very much simplified. Considering, for the moment, only dissolved gas, it has been pointed out that the value obtained for the gas-oil ratio depends upon the method adopted for its measurement;[4, 5] on whether the gas is removed from solution in a single flash or in a number of stages. The discrepancy is due, of course, to the fact that we are not in general dealing with a pure gas dissolved in a nonvolatile liquid, but with one of vari-

[2]D. T. Jones; Proc. World Petr. Congress (1934) 1, 467.

[3]Lindsly; The Oil and Gas Journal (Jan. 1, 1933).

[4]Reference of footnote 3.

[5]Comins; Proc. World Petr. Congress (1934) 1, 458.



PRESSURE SPECIFIC VOLUME CURVES—M-I-S OIL
Experimental curves at 465 and 577 lbs/sq. in. Abs. Interpolation formulae.

V	.025	.03	.035	.04	.045	.05	.06	.07	.08	.09	.10
p	.98p$_s$ — 142	.785p$_s$ — 122	.81p$_s$ — 77	.455p$_s$ — 36	.384p$_s$ — 25	.33p$_s$ — 16	.25p$_s$ — 2	.196p$_s$ + 7	.161p$_s$ + 12	.143p$_s$ + 12	.134p$_s$ + 8

From 124-14 lbs./sq. inch abs. $V = \frac{.0141\ p_s}{p - s\,5}$

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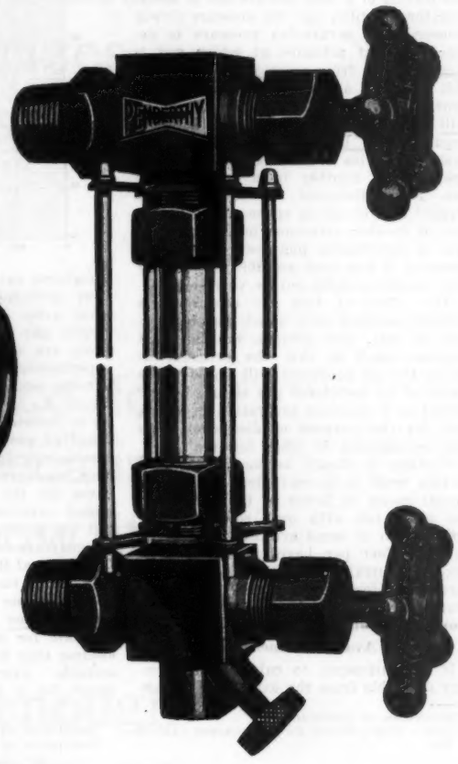

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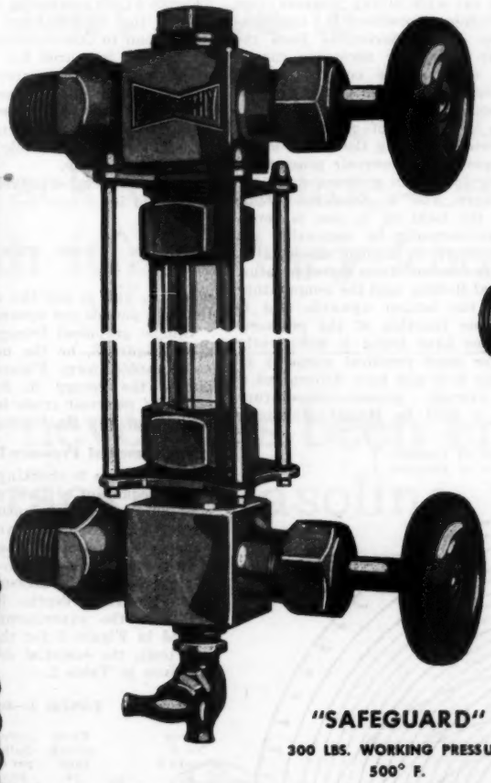

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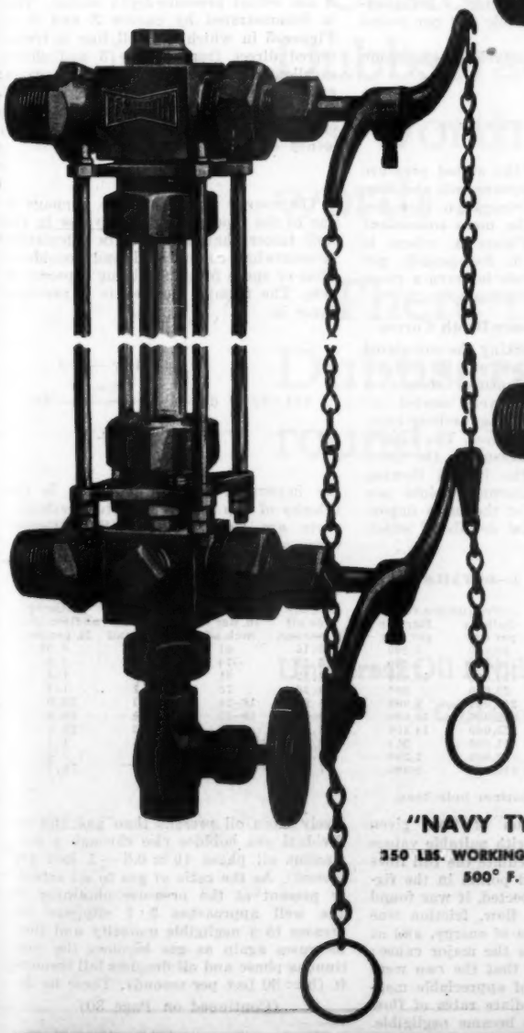
500° F.



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able composition including the vapors of low boiling liquid hydrocarbons. The temperature of separation and the attainment of true equilibrium also require close attention if accurate and repeatable values are to be obtained, so that ordinary field measurements cannot be expected to provide more than a rough approximation. A considerable amount of work has been carried out in Persia on this subject from a number of different points of view. We require, for example, to calculate the optimum number of stages and pressures of gas separation to retain the maximum amount of volatile liquid hydrocarbons in the residual crude.

From the point of view of reservoir control and the flow of wells the saturation pressure has been found of considerable value as an easily measured and unique property of a given reservoir crude. If a sample of oil is drawn from the bottom of a well, mainthined at reservoir temperature, and the pressure slowly released, the saturation pressure is defined as that pressure at which gas is first evolved from solution. The use of this quantity avoids any ambiguity and considerably simplifies interpolation, as will be seen from the curves and nomograms given herewith. The saturation pressure varies from one point in the reservoir to another in a manner that has been discussed by Comins and Pym[6, 7] and to which space will not permit of further reference here. Once the law of distribution has been determined, however, it has been possible to consider very simply possible future variations.

The effect of free gas represents a difficult problem with which we have not had to deal. The obvious solution that suggests itself is that the pressure at which the oil produced will dissolve the whole of its associated gas should be employed as a nominal saturation pressure, and, for the purpose of discussion, this will be assumed in what follows.

Finally, it should be mentioned that in this work it is convenient to express gas-oil ratios in terms of the volume of gas associated with unit volume of oil rather than in some arbitrary unit such as cubic feet per barrel. Thus a 40:1 ratio is equivalent to 225 cubic feet per barrel, or (for Persian crude) to a saturation pressure of about 460 pounds per square inch absolute.

Available Energy

If one attempts to calculate the energy available from the expansion of this associated gas with falling pressure from first principles considerable complications arise due to deviations from the simple gas laws. The necessary corrections are quite simple covered by the experimental method used in the work at present under discussion. (See also example 3.) A sample of reservoir crude oil is drawn containing the whole of its dissolved gas under reservoir pressure.[8, 9] The sample is held in a closed container over mercury and a pressure volume curve for the total oil + gas is determined experimentally by measuring the fall in pressure as known amounts of mercury are removed from the apparatus. In an actual flowing well the temperature falls from the bottom upwards and is not a unique function of the pressure. However, we have found it sufficiently accurate for most practical purposes to assume that it is and have determined a suitable average pressure-temperature curve for a well in Masjid-i-Sulaiman (Figure 1). In measuring pressure-volume curves the temperature is adjusted to correspond to this average p-T curve. p-v curves are measured for a few samples of oil with different saturation pressures and interpolation between them is then a simple matter. In Figure 2 are shown a number of typical curves, v being expressed in the units cubic feet per pound of reservoir crude.

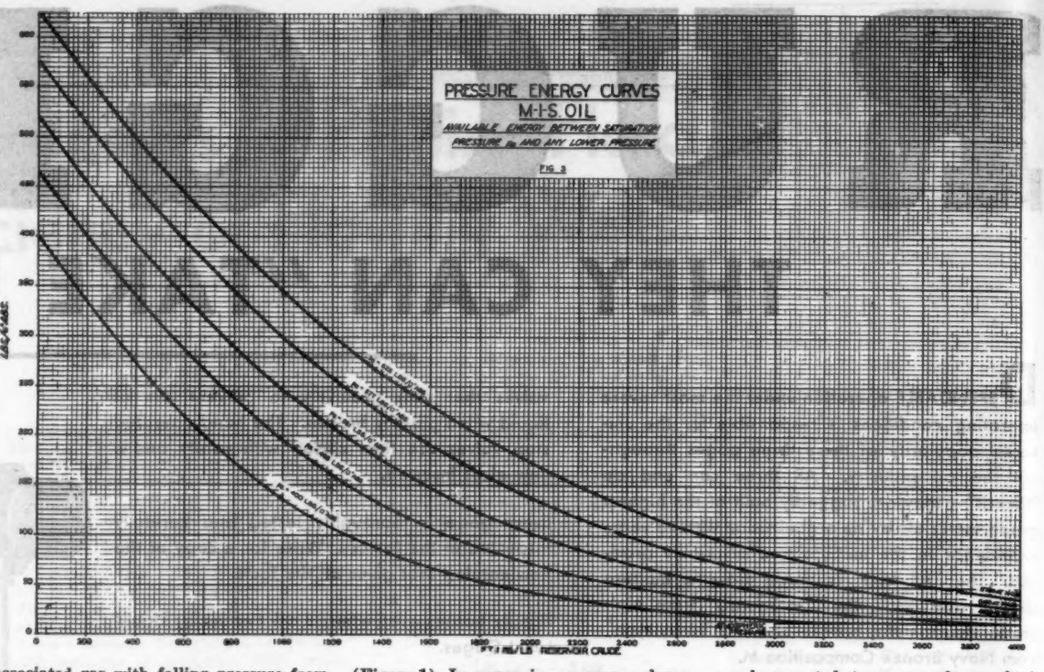
Now the energy available on expansion of a fluid is

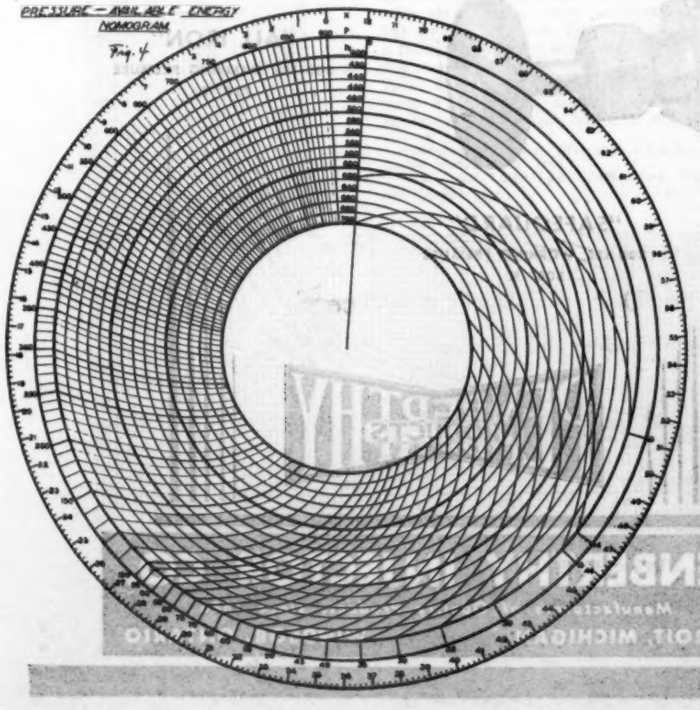
$$144 \int_{p_1}^{p_2} v\,dp \quad \text{ft.-lb. per lb.}$$

where p_1 and p_2 are the stated pressure limits in pounds per square inch absolute.

Simple graphical integration therefore gives Figure 3, or the mere convenient nomographic form Figure 4, where is plotted the energy in foot-pounds per pound of reservoir crude between a given initial and any final pressure.

[6]Reference of footnote 5.
[7]Pym.; Proc. World Petr. Congress (1934) 1, 462.
[8]Reference of footnote 1.
[9]Reference of footnote 7.





Experimental Pressure-Depth Curves

With a view to checking the calculated general equation of flow and of evaluating the unknown quantities therein a number of experiments were carried out on a particular well using various rates of flow and flow-string sizes. The experiments consisted in measuring the pressure at various depths in the flowing well and the experimental points are plotted in Figure 5 for the more important tests, the essential details of which are given in Table 1.

TABLE 1—DETAILS OF TESTS PLOTTED IN FIGURE 5

Curve No. 5 Figure 5	Flow string, inch	Production rate—Gallons per day	Production rate—Barrels per day	Velocity of gas-free oil ft. per sec.	Flow head pressure lb. per sq. inch abs.	Actual gas-oil ratio at flow head	Mean velocity at flow head, ft. per sec.
1	10	42,000	1,200	0.16	61	5:1	0.96
2	10	106,000	3,030	0.39	74	4:1	1.9
3	10	554,000	15,800	2.12	91	2 5:1	7.4
4	6¼	28,000	800	0.25	72	4:1	1.4
5*	6¼	210,000	6,000	1.99	18–24	25:1	52.0
6*	6¼	370,000	10,600	3.5	19–22	22:1	80.0
7	6¼	520,000	14,850	4.94	82	2:1	20.0
8	4	11,000	314	0.27	76–77	4:1	1.4
9	4	42,000	1,200	0.99	89.5	2.5:1	3.5
10	4	315,000	9,000	7.5	21	5:1	74.0

*Flowing through bottom hole bean.

The general equation of flow given above was then used with suitable values of the constants to calculate the full lines drawn over the plotted points in the figure. As is normally expected, it was found that at high rates of flow, friction was the major cause of loss of energy, and at low rates slippage was the major cause; but it was also found that the two were never simultaneously of appreciable magnitude and at intermediate rates of flow all such energy losses became negligible. Under these conditions the last three terms of the general equation of flow can be equated to zero and we obtain simply

$$144 \int v\,dp = \int dx$$

or, in other words, the curves of Figure 3 are actual pressure-depth curves. This is demonstrated by curves 3 and 9 of Figure 5 in which the full line is transferred direct from Figure 3 and shows excellent agreement with the two sets of experimental results. At lower rates of flow it is necessary to consider only the effect of slippage in reducing the efficiency of flow.

Slippage

The energy loss known as slippage is due to the tendency of gas to rise in the well faster than the oil. Its calculation is somewhat complicated and considerations of space forbid its being reproduced here. The formula derived in a previous paper is

$$144\,v\,dp = dx + \frac{144\left(v - \frac{1}{\rho}\right)}{\frac{w}{v - \frac{}{Ab}} + 1}\,dp$$

the important feature of which is the velocity of slip b. According to Versluys,[10] there are two fundamentally different types of flow. In the first there is relatively more oil present than gas and individual gas bubbles rise through a continuous oil phase (b = 0.6 — 1 foot per second). As the ratio of gas to oil actually present at the pressure obtaining in the well approaches 1:1 slippage decreases to a negligible quantity and then increases again as gas becomes the continuous phase and oil droplets fall through it (b = 30 feet per second). These he de-

(Continued on Page 30)

[10]Versluys; Trans. A.I.M.E. (1930) 86, 192; ibid. (1931) 92, 279; Jnl. Inst. Petr. Tech. (1932) 18, 684.

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On the Verge of Action

The outlook is better this week, thanks largely to the Planning and Coordination Committee asserting itself.

Realization that dollar crude had reached a crisis, in view of the continuing increase in "hot" oil and the widening demoralization of the gasoline market, threatened to wreck the entire code.

It was time for the representatives of the industry on the Planning and Coordination Committee to speak out.

Dollar crude was posted in the faith that the petroleum administration would check the production of "hot" oil. It utterly failed to do so. The day of reckoning had arrived. The issue was presented squarely: "Hot" oil must be stopped or the price can not be maintained.

The petroleum administration could not plead for more time because it had already had a year and a half and had nothing to show for it in the way of enforcement. The situation was, in fact, getting more out of hand every day.

While the administration fussed with administrative details and interdepartmental complications the business of the industry was being shot to pieces. It faced a condition, not a theory.

The industry had supported the administration loyally even to the point of sacrifice as in the gasoline buying campaign, until it found it was pouring money into a rat hole. The more gasoline it bought the more "hot" oil was produced.

It was absolutely useless to go on unless something definite was done. If the code could not check "hot" oil it was worthless.

This was plain to the Planning and Coordination Committee and last week's conference made it plain to Administrator Ickes.

With all due allowances for the number of times the industry has been deluded by announcements of new drives for enforcement which failed to materialize there are circumstances in the latest announcement which permit hope.

First, there is the definite understanding that the industry demands action within a specified period. The industry has taken charge of the situation. There is a clear cut alternative.

The administration does not want a crude price cut. Dollar crude has been its one boast without any particular right.

The administration's failure has been due primarily to lack of knowledge of the business problems of the industry but chiefly to the labyrinthine entanglement of governmental methods. It has been like an elephant trying to corral a bunch of jack rabbits.

Federal representatives in East Texas, even if the agents of the different departments were on speaking terms, had to refer everything back to their Washington offices and these had to exchange duplicates and triplicates before action could be ordered. By that time, perhaps 90 days, the East Texas jack rabbit could have acquired a complete new identity and everything had to be started anew.

This impotence upon the part of the government finally provoked a conference between the oil administrator and the attorney general which resulted in the appointment of a special attorney-general with full authority to act in the field. The accumulated evidence awaits his action without further excuse for delay.

There have been plain intimations that Federal suits to stop interstate transportation of "hot" oil can be sustained in the courts under Section 9C of the National Recovery Act. We are now promised an immediate test.

The establishment of a Federal tender committee to pass upon interstate shipments, assisted by experienced oil men, is a hopeful step. We should soon have a demonstration, one way or another, whether the Federal administration can check "hot" oil.

Another interesting outcome of the conference between the administrator and the Planning and Coordination Committee was the discussion of the proposed Federal oil legislation.

The committee's experience with Federal administration has been unfavorable to the bill which Mr. Ickes wished passed by the last Congress. If any legislation on oil is to be enacted by the coming Congress the committee prefers it take the form of authorizing an interstate compact.

The administrator is understood to have recognized the views of the committee but the committee stipulated that a draft of the proposed legislation be submitted for its consideration.

This, however, looks largely to the future, the expiration of the code next June. By that time, if the administration makes good its program of checking "hot" oil by control over interstate shipments, there may be no necessity for further legislation and the industry can return to normal without further governmental intervention.

The proposed resumption of gasoline buying may be more successful if Federal enforcement is really tightened.

The immediate effect should be to steady the gasoline market and stave off the crude price reduction until it is seen whether this time is to be different. A very few days should tell.

The most encouraging feature is the new position of the Planning and Coordination Committee. At the outset of the code, it will be remembered, the expectation was that this committee would hold a position similar to that of the code authority in other industries. Instead, it was reduced to a merely advisory attitude while the Petroleum Administrative Board was exalted to a control over the industry which no other industry has been subjected to.

With the appointment of an executive assistant to Administrator Ickes and the strong attitude taken by the Planning and Coordination Committee the Petroleum Administrative Board is reduced to its proper proportions. Mr. Ickes' open-mindedness is illustrated anew by his acceptance of the committee's view that the industry's affairs should be in charge of men experienced in and representative of the oil industry in contrast to his original theory preferring men outside.

It was impossible for Mr. Ickes or any man unfamiliar with the oil business to solve the problems of the industry. The efforts of his selections, qualified because they were outside of and therefore knew nothing of the industry, have been mainly befogging.

Theory and interpretation and official routine have monopolized attention and obscured the practical everyday problems of the oil business which would have been the first consideration of men familiar with the industry and its operations.

The conferences of last week have cleared the air. The threatening clouds may pass. At any rate the hour of decision is here. The industry and the administration ust cannot go on as they have been going following a will of the wisp.

We are on the verge of action.

PRACTICAL OPERATORS REVIEW THE RESULTS OF RESEARCH

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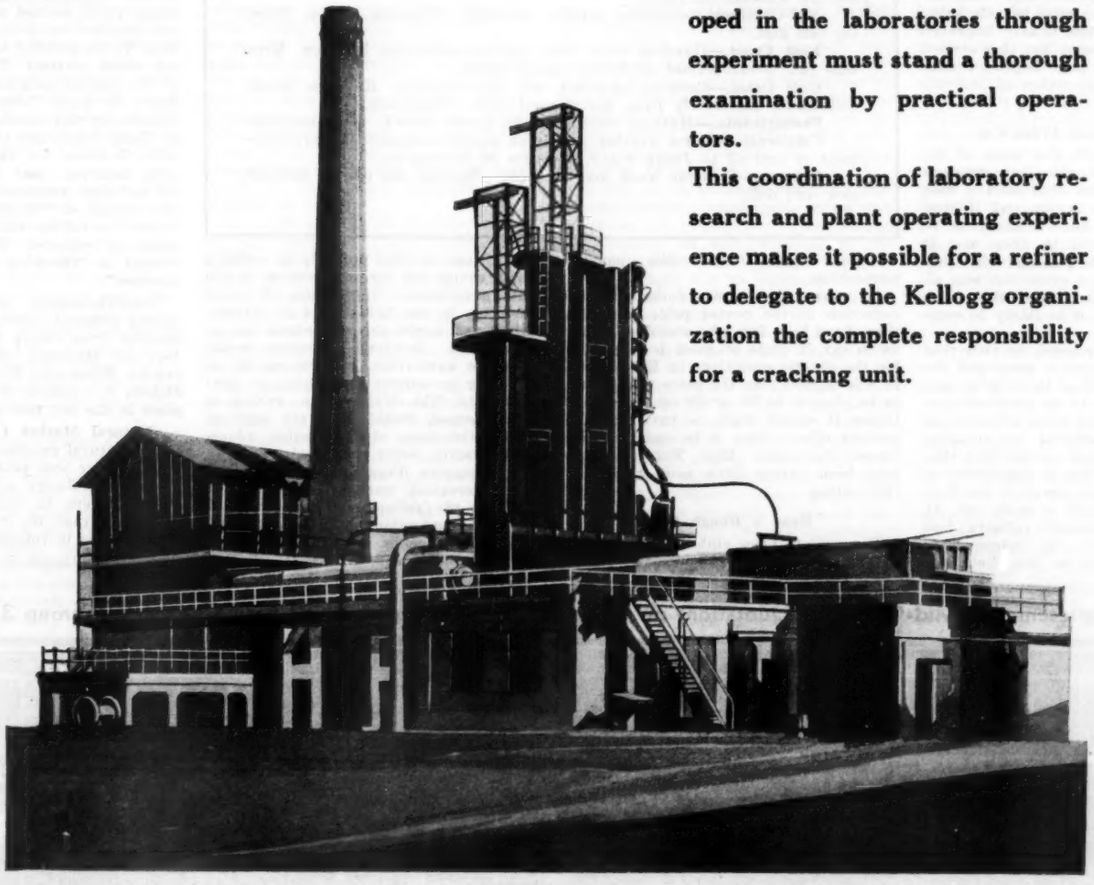

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Few Signs Visible of Clarified Gasoline Market in Group 3, With Demoralization Acute

By T. F. SMILEY

Few signs of a clarified gasoline market were visible this week in the Oklahoma (Group 3) area, where for weeks demoralized conditions arising from illegal oil operations in East Texas have been acute. The middle of last week saw U. S. Motor low-octane material quoted at 2 cents resale. The market braced up a little after that, rising in hesitating fashion about three-eighths cent, where it stood Tuesday. Where it would go from there was anybody's guess.

There was reported to be plenty of gasoline in East Texas, but with refiners less disposed to offer bargain sales. Reasons given for the faintly improved market tone were vague, but they seemed to be predicated on some hoped-for Federal action in the direction of law enforcement.

Less Talk About Crude Cut

There was less talk this week of the imminence of a crude price cut, although it was freely asserted that such a step would be inevitable in the end if temporizing with the hot-oil situation in East Texas continued to drag on. It was noticeable that persons who previously had declared a crude cut was almost certain to take place this week were now predicting it as likely to come in a month or so.

Some observers expressed the view that the longer a crude cut is postponed the less likelihood there is of there being one. This attitude seems to be predicated on a belief, or hope, that some effective instrument may be adopted for stopping the flow of hot oil and on the fact that Oil Administrator Ickes is understood to be ready to throw the power of the Federal Government against a crude cut. At conferences of interested refiners last Friday and Saturday the independents were reported to favor an immediate cut, while the majors looked coldly upon the proposition.

In recent discussions of the proposed reduction in the posted price for crude there have been few who would go so far as to say it could of itself be a remedy for the chaotic conditions in East Texas. It was agreed that the price would have to be slashed to 25 or 30 cents a barrel before it would begin to have any important effect, since it is commonly accepted that some East Texas refiners have been paying little more than that right along.

Road a Rough One

The road to price stabilization by way of a crude cut was acknowledged to be a rough one, marked probably by violence which would call for intervention of the state government. Indignation of many producers in the field would be intense. Shutdowns would throw workers out of employment. Inevitable disorders would force the authorities, hitherto unable or unwilling to correct conditions, to deal summarily. The situation thus arising, it was reasoned, would force the state to remove the cause of the trouble, adopting measures never previously resorted to for stopping illegal oil operations.

An increasing number of men interested in the refined oil market deprecated the suggestion of a crude cut because of the chaos it would invite, because it would tend to increase the extent of government supervision of the business and because of its doubtful merits as a remedy at best.

In the meantime the report that a special attorney for the Federal Government was to begin a fresh series of prosecutions against illegal oil operators in East Texas was exciting mild interest.

Resumption of Buying Program Remote

Resumption of the gasoline buying program, suspended three weeks ago because of nonenforcement of regulations against shipment of gasoline made from illegal crude seemed remote. The majors are reported to have been taking some East Texas gasoline at 5 cents, although not under contract. Prior to suspension of the buying program, independent refiners in East Texas signed contracts stipulating they should abstain from use of illegal crude and that they should receive 5 cents for their output. It is said, however, that the needed buyers did not sign contracts. Some majors, on the ground of "moral obligation," have helped in taking this gasoline off the hands of refiners. Their action is described as "throwing money out of the window."

Notwithstanding apparent lack of buying stimulus, substantial movement of gasoline from Group 3 territory to jobbers in Missouri, Illinois, Iowa, Nebraska, Minnesota, Wisconsin and South Dakota is reported to have been taking place in the last two weeks.

Natural Market Continues Brisk

The natural gasoline market continued brisk. There was said to be some shading of the 3-cent price for 26-70 by manufacturers in outlying districts in Oklahoma that do not have favorable freight rates to refinery centers. A drop

(Continued on Page 31)

Refined Oil Market Barometer

Rumors of indefinite origin to the effect that the Government was about to deal with illegal oil operators on a new basis, offering hope that the demoralized situation in East Texas at last might be cleaned up, served to inject faint signs of firmness in the gasoline market. Consumption was holding up satisfactorily in all areas. Burning oils were feeling the effect of mild weather, but their sogginess was regarded as only temporary. Lubricants were inclined to be droopy. Natural gasoline was continuing to feel its seasonal buoyancy.

Mid-Continent.—Gasoline market unsettled. Naturals strong. Burning oils dull.

East Coast.—Gasoline weak, with general reductions in price. Kerosene off. Steam-refined stocks for export down.

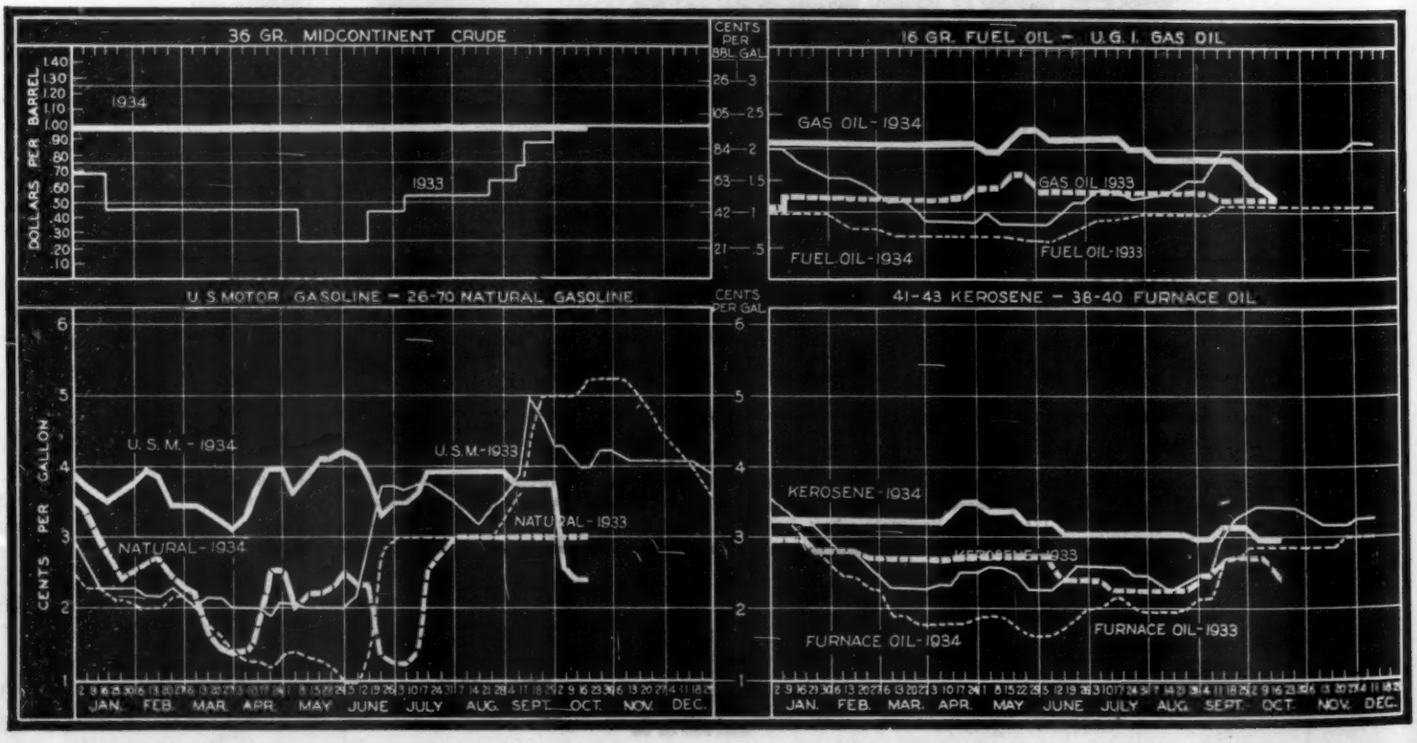
Gulf Coast.—Gasoline unsettled, with little trading. Kerosene steady. Lubricants moderately firm, but demand light. Fuels soft.

Pennsylvania.—Markets unsettled with trends mixed. Gasoline weak.

California.—Warm weather sustaining gasoline demand. Export movement of fuel oil to Japan heavy. Furnace oil firming up.

Chicago.—Gasoline weak and irregular. Heating oils easier. Solvents slow and dull.

Representative Mid-Continent Quotations on Crude Oil and Refined Products Basis Oklahoma (Group 3)



Lack of Enforcement, Causing Too Much Crude, Put Down Refined Prices in the Eastern States

By C. O. WILLSON

New York Bureau, The Oil and Gas Journal

NEW YORK, Oct. 14.—The reductions in gasoline tank car, tank wagon and service station prices which became effective in this territory over the past week did not come as a surprise to a majority of the trade. Decreases in fact have been expected since late August with local reductions becoming effective from day to day so that when the general lowering of schedules was announced many points were below normal and in a few cases still are.

Details of Price Decline

The decline in gasoline prices started October 11 when the Standard Oil Co. of New Jersey announced a 1-cent reduction in gasoline tank car prices with a 2-cent reduction in tank wagon and service station prices applying to its marketing territory extending along the seaboard from New Jersey to South Carolina.

The new tank car prices in the New York Harbor area as posted by the major refiners were 6 cents for the branded ethylized grade, 5¾ cents for 65 octane and above, 5½ cents for 60 to 64.9 octane and 5¼ cents under 60 octane.

The New York and Bayonne prices became the same for the first time in several weeks when the Socony-Vacuum Oil Co., Inc., reduced its tank car prices in New York one-half cent per gallon. Previously they had been one-half cent lower than the Bayonne prices for shipments into New Jersey.

The Socony-Vacuum company also lowered its tank car gasoline prices at other points in New York and New England, where quotations had not already been reduced through local price wars.

The drastic reduction of 2 cents in the Standard of New Jersey territory failed to stabilize the unbalanced situation which has existed in the retail and tank wagon markets for several weeks. Independent station operators who do not sell the branded products of the major companies immediately reduced their prices 2 cents. At many points these operators sell what they call their regular grade at 1½ cents under the prices charged by the major distributors for their regular grade containing Ethyl fluid. This wide differential is said to have resulted in loss of gallonage to many of the major distributors.

On Friday, October 12, the Standard of New Jersey and other companies in New Jersey reduced their prices an additional cent. Some of the jobbers again reduced their prices which resulted in further reductions by the major companies, so that by Saturday the reductions for the three days at many points in New Jersey totaled 4.4 cents per gallon in the regular grade gasoline. The net effect at this writing was that the third grade gasoline of the larger companies had been reduced to the levels of the independent station and the differential between these prices and those posted for the regular branded grade of large companies had been reduced to one-half cent. This in turn brought various acts of retaliation from the independent station operators including complaints to Washington claiming violation of code. Today it was reported that as a result of price slicing gasoline was selling in Camden, N. J., for 7 and 8 cents per gallon exclusive of taxes.

It is believed that the Socony-Vacuum Oil Co., Inc., will make reductions in gasoline tank wagon and service station prices in its territory, which includes New York state and New Enlgand, and in the event of a substantial slice in posted crude oil prices it is predicted that tank car quotations will be reduced to still lower levels.

The gasoline market generally in this section was in a more unsettled condition than any time in the past 18 months. The weakness in the domestic market was reflected in one-fourth to three-eighth cent reductions in export prices at the Gulf.

The trade attention was being centered in the gasoline situation and little attention was being paid to other producers. Prices on some grades of steam refined stocks were lower and kerosene export prices were one-fourth cent lower. Other products were generally unchanged.

The causes of the reductions have been in the making for several months. At the start of the year or earlier it became apparent that trouble was certain so far as the gasoline market in this territory and the country generally was concerned. Scarcity of gasoline which makes for firm or advancing markets never existed dating back to the fall of last year when the higher crude oil schedules and the petroleum code under the NRA became effective.

The explanation given by local market students is that crude oil proration schedules were not enforced over a sufficiently long period so that crude runs to stills were restricted to actual current requirements taking into consideration the seasonal changes which are necessary in inventories.

A majority of these market observers believe that if the crude oil allowables had been enforced, with the "hot" oil products eliminated, there would have been no trouble with the gasoline market especially in this territory which is farthest removed from the fields and does not have to cope with some of the marketing conditions always found in the oil country. The trouble was not on the consuming side because with one or two exceptions all the states in this section have shown increases over last year ranging from 5 to 11 per cent.

In lieu of an adequate crude oil curtailment program considerable stress was placed on the possibilities of controlling the situation at the refineries by restricting crude runs to stills. Coupled with this there was an elaborate organization setup to enforce the code as applied to marketing.

It is contended by many that the results of the past few months again clearly show the futility of trying to control operations at refineries or enforce so-called codes of fair practice in marketing in the face of an oversupply of crude oil. When excess crude oil is available it will be refined and in the form of finished products some method will be found to make it available in retail markets at whatever prices necessary to attract consumers regardless of any self-imposed or government regulations which aim to provide orderly distribution at prices in line with all the costs of production.

The marketing code under the NRA has been no more effective apparently than was the one adopted voluntarily by the industry several years ago and which had about run its course when the government program became effective. There are still companies which are following the letter of the code's provisions. It has its defenders although in most cases they agree that a sound condition in the producing and refining branches is necessary before any code of marketing practices will receive sufficient support to make it permanently successful.

These factors, which have been discussed in the trade since the price reductions became effective, are outlined here because of their direct relation to tank car and service station prices on gasoline, and because of their probable significance in future price trends. Large and small companies which have observed all the rules of the code and have lost or antagonized customers and increased their operating costs, now feel that they have been the "goat" and if their statements are to be credited they will go slow in joining any new program that may be suggested regardless of how well intentioned it may be.

So far as gasoline prices are concerned this territory constantly has had to contend with low prices at the Gulf. The latter market in turn reflected the weakness of the Mid-Continent including the "hot" oil situation in Texas. Since the first of the month the U. S. Motor market at the Gulf based on delivered cargo quotations at Atlantic Seaboard points has dropped to around 3¾ cents for middle octane. This means under 5 cents for delivery in New York harbor and other seaboard points. The price as posted by most of the major refiners in this territory for that grade at the seaboard was 6 to 6¼ cents forcing the 1 cent reductions of the past week.

In the gradual breakdown of price structures over the past few weeks at many points the charge has been made that price cutting has not been confined to the smaller sellers but includes major operators who had gasoline they were anxious to sell. Cases are cited in which the major companies are alleged to have sold the gasoline on a tank car basis to jobbers who in turn brought about reductions in tank wagon and service station schedules in the same area in which the companies which sold them the gasoline also had stations. All of which, if true, is a reflection of rather than a cause of a weak market situation which goes back to the refineries and the crude from which the products were refined.

A Jobber Viewpoint

A jobber viewpoint is given by Allen B. Tint of the Regal Oil Co., an impor-

(Continued on Page 50)

American Petroleum Institute Weekly Refinery Statistics

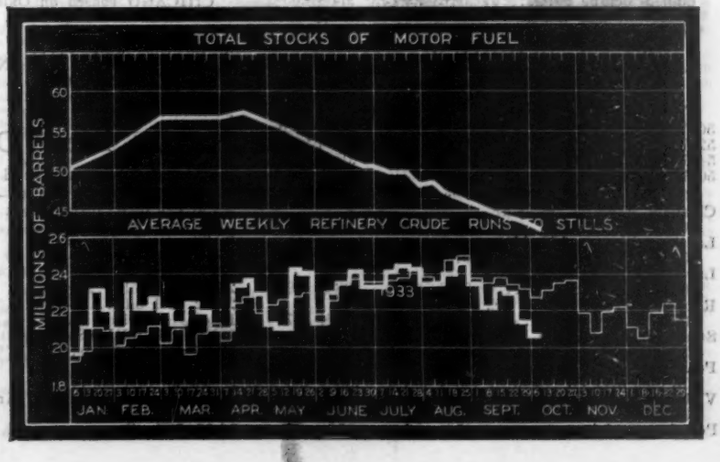
New York, Oct. 16.

The Oil and Gas Journal

Tulsa, Okla.

Refinery report delayed because of California.

American Petroleum Institute.



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement except as otherwise noted

The following quotations are exclusive of the Federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils:

Refinery Gasolines

OKLAHOMA (Group 3)—	Oct. 16		Oct. 9	
U. S. Motor grades:				
Below 63 octane	.02½	.03	.02½	.03¼
63-70 octane	.03⅝	.04	.03⅞	.04
60-62 400 grades:				
Below 63 octane	.02⅝	.03¼	.02⅝	.03⅜
63-70 octane	.03⅝	.04	.04	.04¼
64-66 375	.03½	.03¾	.03½	.03¾
68-70 360	.03⅝	.03⅞	.03⅝	.03⅞
NORTH TEXAS—				
U. S. Motor grades:				
Below 63 octane	.02¾	.03	.03	.03¼
63-70 octane	.03¾	.04½	.04¼	.04½
60-62 400	.03	.03¼	.03¼	.03½
64-66 375	.03⅝	.03⅞	.03⅝	.03⅞
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
U. S. Motor grades:				
Below 63 octane	.03	.03¼	.03½	.03¾
63-70 octane	.04½	.04⅝	.04¾	.05
60-62 400	.03¼	.03½	.03¾	.04
68-70 360	.04	.04⅛	.04⅛	.04¼
ARKANSAS (Ark., N. La. & Miss. del.)—				
U. S. Motor grades:				
Below 63 octane	.03	.04¼	.03¾	.03⅞
63-70 octane	.04½	.04⅝	.04¾	.05
CHICAGO (based on Oklahoma Group 3)—				
U. S. Motor grades:				
Below 63 octane	.02½	.03	.02¾	.03¼
63-70 octane	.04¼	.04½	.04⅝	.05
60-62 400	.02⅝	.03	.02⅞	.03¼
64-66 375	.03½	.03⅝	.03⅝	.04
68-70 360	.03¾	.04	.04⅛	.04¼
Aviation fighting grade	.04¾	.05	.05	.05⅛
PENNSYLVANIA (inland refineries)—				
58-60 U. S. Motor:				
Below 60 octane	.05⅛	.05⅜	.05⅜	.05⅝
60-64.9 octane	.06⅛	.06¼	.06⅛	.06¼
65-70 octane	.06½	.06⅝	.06½	.06⅝
68-70 350	.06	.06¼	.06⅝	.06½
CALIFORNIA (domestic movement)—				
54-58 U. S. Motor	.07	.08	.07	.08
58-60 400	.08	.09	.08	.09
EAST COAST—				
U. S. Motor, below 60 octane:				
*New York	.05¼		.05⅜	
Baltimore	.05¼		.05⅜	
U. S. Motor, 60-64 octane:				
*New York (Bayonne)	.05½		.06	
Philadelphia	.05½	.05¾	.06	.06¼
Boston	.04	.04½	.04½	.05
Baltimore	.05½		.06	
Charleston, S. C.	.05½	.05¾	.06	.06¼
U. S. Motor, 65 and above:				
*New York	.05¾		.06¼	
Philadelphia	.05¾	.06	.06¼	.06½
Boston	.04½	.04¾	.05	.05¼
Baltimore	.05¾	.06	.06¼	.06½
Charleston, S. C.	.06		.06½	

*All grades of gasoline one-fourth cent less for small barge shipments.

GULF COAST (domestic) —				
U. S. Motor:				
Below 60 octane	.04½	.04¾	.04½	.04¾
60-64.9 octane	.04¾	.05¼	.04¾	.05¼
65 octane and higher	.05¼		.05¼	

Naphthas

	Oct. 16		Oct. 9	
PENNSYLVANIA (inland refineries)—				
50-52 (blending)	.05⅛	.05¼	.05¼	.05⅜
52-54 450 (blending)	.05⅛	.05¼	.05¼	.05⅜
54-56 450 (blending)	.05⅛	.05¾	.05¼	.05⅝
50-52 450 (blending)	.03¼	.03⅞	.03½	.03¾
CHICAGO (based on Oklahoma Group 3)—				
Cleaners' naphtha, 56-58 gr., 200 i.b.p.-320 e.p.	.06¾	.07	.06¾	.07
Lacquer diluent, 180 i.b.p.-250 e.p.	.07¾	.08	.07¾	.08
Lacquer diluent, 140 i.b.p.-200 e.p.	.08¾	.09	.08¾	.09
Rubber solvent, 68-70 gr., 100 i.b.p.-300 e.p.	.06¾	.07	.06¾	.07
Stoddard solvent, 300 i.b.p.-410 e.p., over 83° flash	.06¼	.06½	.06¼	.06½
Pet. thinner, 290-300 i.b.p.-415 e.p., over 83° flash	.06¼	.06½	.06¼	.06½
V.M.&P. naphtha, 56-58 gr., 190-200 i.b.p.-330 e.p.	.06¾	.07	.06¾	.07
Petroleum spirits	.05¾	.06	.05¾	.06

Natural Gasolines

OKLAHOMA (Group 3)—	Oct. 16		Oct. 9	
Grade 26-70	.03		.03	
Grade 18-55	.03½		.03½	
Low vapor pressure grades:				
14 lb. v.p. (max.)	.03¾		.03¾	
11 lb. v.p. (max.)	.04⅛	.04¼	.04⅛	.04¼
NORTH TEXAS—				
Grade 26-70	.02¾	.02⅞	.03	
Grade 18-55	.03⅜	.03½	.03½	.03⅝
Low vapor pressure grades:				
14 lb. v.p. (max.)	.03⅝	.03¾	.03⅝	.03¾
11 lb. v.p. (max.)	.04		.04	.04¼
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
Grade 26-70	.03⅜		.03⅜	
CALIFORNIA—				
75-85 375	.06½	.06¾	.06½	.06¾

Kerosenes

(All kerosenes water white)

OKLAHOMA (Group 3)—	Oct. 16		Oct. 9	
41-43	.03	.03⅛	.03	.03⅛
42-44	.03⅛	.03¼	.03⅛	.03¼
NORTH TEXAS—				
40-41	.02⅞	.03⅛	.02⅞	.03⅛
41-43	.03	.03¼	.03	.03¼
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
41-43	.03⅜		.03⅜	
ARKANSAS (Ark., N. La. & Miss. del.)—				
41-43	.03⅜	.03½	.03⅜	.03½
PENNSYLVANIA (inland refineries)—				
45	.04⅝	.04¾	.04½	.04⅝
46	.04¾	.04⅞	.04⅝	.04¾
47	.04⅞	.05	.04¾	.04⅞
CHICAGO (based on Oklahoma Group 3)—				
41-43	.03	.03⅛	.03⅛	.03¼
42-44	.03¼	.03⅜	.03¼	.03½
CALIFORNIA (Pacific Coast consumption)—				
38-40 high burning test	.04¾	.05¼	.04¾	.05¼
NEW YORK (Bayonne, N. J.)—				
41-43	.04¾	.05	.05	.05¼
GULF COAST (domestic)—				
41-43	.04½	.04⅝	.04½	.04⅝

Petroleum Coke

(Prices per ton f.o.b. refineries in Chicago area)
(Refineries will absorb freight to 80 cents a ton)

	Oct. 16	Oct. 9
Still run	5.75	5.50
Direct from still	6.75	6.50
Egg, nut, pea	8.25	8.25
Lump	8.25	8.25

Furnace Oils and Tractor Fuels

(Zero cold test under 190° flash and good odor)

OKLAHOMA (Group 3)—	Oct. 16		Oct. 9	
32-36 straw	.02½	.02¾	.02⅝	.02⅞
36-38 straw	.02⅝	.02⅞	.02½	.02⅝
38-40 straw	.02½	.02⅝	.02⅝	.02¾
38-40 prime white	.02⅝	.02¾	.02¾	.02⅞
NORTH TEXAS—				
38-40 straw	.02½	.02⅝	.02⅝	.02¾
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
36-40 furnace oil	.02½	.02¾	.02⅝	.02⅞
ARKANSAS (Ark., N. La. & Miss. del.)—				
32-36 furnace oil	.02½	.02⅝	.02⅝	.02⅞
CHICAGO (based on Oklahoma Group 3)—				
32-36 straw	.02½	.02⅝	.02¾	.02⅞
38-40 straw	.02½	.02¾	.02⅝	.02⅞
38-40 prime white	.02⅝	.02⅞	.02⅞	
NEW YORK (Bayonne, N. J.)—				
36-40 (No. 1 grade)	.05	.05¼	.05	.05¼
32-36 (No. 2 grade)	.04½		.04½	
21 industrial (No. 4 grade)	.04½		.04½	

Gas Oil, Diesel Oil and Fuel Oil

(Gas oil per gallon; Diesel and fuel oils per barrel)

OKLAHOMA (Group 3)—	Oct. 16		Oct. 9	
32-36 gas oil cracking stock	.01½	.01⅝	.01¼	.01½
U.G.I. gas oil	.01¼	.01⅜	.01⅜	.01½
32-36, zero to 15 gas oil	.02⅜	.02⅝	.02½	.02¾
28-30, No. 3 burner oil	.95	1.00	.95	1.00
26-30, zero to 10 fuel oil	.85	.95	.85	.95
24-26 fuel oil	.75	.80	.75	.80
20-22 fuel oil	.70	.72½	.70	.72½
Below 16 fuel oil	.60	.62½	.60	.62½
NORTH TEXAS—				
32-36 gas oil, industrial	.01⅛	.01⅜	.01¼	.01½
22-26 fuel oil	.67½	.70	.67½	.70
Below 20 fuel oil	.57½	.62½	.57½	.62½
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
30-32 gas oil, zero	.02⅜	.02½	.02½	.02⅝
14-16 fuel oil	.70	.75	.70	.75
ARKANSAS (Ark., N. La. & Miss. del.)—				
30-32 gas oil, zero	.02⅜	.02½	.02½	.02⅝
32-36 gas oil	.02¼	.02⅜	.02⅜	.02½
14-16 fuel oil	.70	.75	.70	.75
CHICAGO (based on Oklahoma Group 3)—				
32-36 gas oil, industrial	.01⅜	.01½	.01¾	.02
28-30 zero to 10, fuel oil	.95	1.00	.95	1.00
26-28 zero to 10, fuel oil	.85	.90	.85	.90
22-26 zero to 10, fuel oil	.75	.80	.75	.80
18-22 zero to 10, fuel oil	.62½	.65	.62½	.65
Below 18 fuel oil	.55	.60	.55	.60

Note: Fuel oils of more than 40 cold test generally 5 to 15 cents per barrel in all these areas:

PENNSYLVANIA (inland refineries)—				
36-40	.03⅞	.04	.03¾	.03¾
CALIFORNIA—				
Los Angeles:				
30-34 gas oil per bbl.	1.10	1.26	1.10	1.26
27 plus Diesel	1.05	1.15	1.05	1.15
27 plus Diesel (bunkers)	1.13	1.20	1.13	1.20
12-16 (bunker at tidewater)	.82	.85	.82	.85
10-16 (cargo lots)	.66	.75	.66	.75
12-17 (tank cars)	.60	.80	.60	.80
San Joaquin Valley:				
10-18 (tank cars)	.55	.70	.55	.70
San Francisco:				
27 plus Diesel per bbl.	1.15	1.25	1.15	1.25
27 plus Diesel (bunkers)	1.19		1.19	
10-16 (bunkers)	.89		.89	
GULF COAST—				
28-30 gas oil	.03½	.03⅝	.03½	.03⅝
28-30 Diesel (bunkers)	1.70		1.70	
Bunker C (bulk cargoes)	.90	.95	.90	.95
Bunker C (bunkers)	1.00		1.00	
NEW YORK (Bayonne, N. J.)—				
27 plus, gas oil	.04½		.04½	
28-30 Diesel (lighterage 6½ cents per bbl.)	1.89		1.89	
28-30 Diesel (tank cars)	.04¼		.04¼	
*Bunker C (to ocean-going ships in N. Y. harbor)	1.15		1.15	

*Lighterage charge 5 cents per barrel additional.

Neutral Oils

(Vis. at 100° F. except Pennsylvania, and color N.P.A.)

OKLAHOMA (Group 3)—	Oct. 16		Oct. 9	
Zero to 10 Cold Test:				
150-3	.10		.10	
180-3	.11¼		.11¼	
180-4	.10¾		.10¾	
200-3	.11¾		.11¾	
200-4	.11¼		.11¼	
240-3	.13¾		.13¾	
240-4	.13¼		.13¼	
280-3	.14¾		.14¾	
280-4	.14		.14	
300-3½	.15¼		.15¼	
400-4	.17¼		.17¼	
100-2 paraffin oil	.05¾		.05¾	
15-30 Cold Test:				
200-3	.10¾		.10¾	
200-4	.10¼		.10¼	
240-3	.12¾		.12¾	
240-4	.12¼		.12¼	
280-3	.13¾		.13¾	
280-4	.13		.13	
GULF COAST—				
Pale Oils:				
200-3	.07½	.08	.07½	.08
300-3	.08	.08½	.08	.08½
500-3½	.09	.09½	.09	.09½
750-3½	.09½	.10	.09½	.10
1,200-3½	.10	.10½	.10	.10½
2,000-4	.10¼	.10¾	.10¼	.10¾
Red Oils:				
200-5-6	.07¼	.07½	.07¼	.07½
300-5-6	.07¾	.08	.07¾	.08
500-5-6	.08½	.09	.08½	.09
750	.09	.09½	.09	.09½
1,200-5-6	.09¾	.10	.09¾	.10
CALIFORNIA—				
Pale Oils:				
100-2½-3	.12½	.14½	.12½	.14½
200-2½-3	.12½	.14½	.12½	.14½
300-3-3½	.12½	.14½	.12½	.14½
350-3-4	.12½	.14½	.12½	.14½
400-3-4	.12½	.14½	.12½	.14½
450-3-4	.12½	.14½	.12½	.14½
550-3-4	.12½	.14½	.12½	.14½
600-3-4	.12½	.14½	.12½	.14½
Red Oils:				
200-4-5	.12½	.14½	.12½	.14½
300-5-6	.12½	.14½	.12½	.14½
350-5-6	.12½	.14½	.12½	.14½
400-5-6	.12½	.14½	.12½	.14½
450-5-6	.12½	.14½	.12½	.14½

500-5-6	.12½	.14½	.12½	.14½
600-5-6½	.12½	.14½	.12½	.14½
700-6¼ plus	.12½	.14½	.12½	.14½
750-6½ plus	.12½	.14½	.12½	.14½
900-6½ plus	.12½	.14½	.12½	.14½
PENNSYLVANIA—				
150 vis. at 70° F., 3 color, 400-405 flash:				
Zero pour test	.23½	.24	.23	.23½
10 pour test	.22½	.23	.22	.22½
15 pour test	.22	.22½	.21½	.22
25 pour test	.21	.21½	.21	.21½
180 vis. at 70° F., 3 color:				
25 pour test	.24½	.25	.24½	.25
200 vis. at 70° F., 3 color:				
Zero pour test	.30	.30½	.29½	.30
10 pour test	.29	.29½	.28½	.29
15 pour test	.28½	.29	.28	.28½
25 pour test	.27½	.28	.27½	.28

Bright and Steam Refined Stocks

OKLAHOMA (Group 3)—	Oct. 16		Oct. 9	
Bright Stocks:				
190-200 D	.19		.20	
150-160 D, 0-10	.16		.17	
150-160 D, 10-25	.15½		.16½	
150-160 24-40	.15		.16	
150-160 E	.15		.16	
Steam refined:				
630 light green (treated)	.13		.13	
600 light green (untreated)	.06	.08	.06	.08
600 dark green (untreated)	.04½	.07	.04½	.07
PENNSYLVANIA—				
Bright Stocks (Pennsylvania grade, No. 8 color, 145-50 at 210; 540-550 flash):				
10 pour test	.22	.22½	.21½	.22
15 pour test	.21½	.22	.21	.21½
20 pour test	.21	.21½	.20½	.21
25 pour test	.18	.19½	.20	.20½
Steam refined:				
600	.10	.11	.12½	.13
650	.13	.13½	.15	.15½
600 Pennsylvania flash	.14	.14½	.16	.16½
630 flash	.18½	.19	.20½	.21½
600 Warren E filtered	.14	.14½	.16	.16½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—	Oct. 16		Oct. 9	
124-126 white crude scale	.03½	.03⅝	.03½	.03⅝
PENNSLYVANIA—				
122-124	.0325		.0325	
124-126	.0325		.0325	
NEW YORK HARBOR—				
Wax (a.m.p.) in bags fully refined:				
120-122	.0420	.0430	.0420	.0430
123-125	.0440	.0460	.0440	.0460
125-127	.0445	.0470	.0445	.0470
130-132	.05	.0510	.05	.0510
133-135	.0545	.0570	.0545	.0570
135-137	.0570	.0595	.0570	.0595
124-126 crude scale	.03	.03⅛	.03	.03⅛
Petrolatum in barrels in carload lots:				
Dark green	.01⅞		.01⅞	
Amber	.02⅛	.03	.02⅛	.03
Extra amber	.03	.03⅛	.03	.03⅛
Lily white	.06⅝	.06¾	.06⅝	.06¾
Snow white	.07¾	.07⅞	.07¾	.07⅞
Cream	.05⅝	.05¾	.05⅝	.05¾
CHICAGO (f.o.b. switching district)*—				
122-124 wax	.0490	.0500	.0490	.0500
125-127 wax	.0515	.0525	.0515	.0525
127-129 wax	.0530	.0540	.0530	.0540
130-132 wax	.0590	.0600	.0590	.0600
132-134 wax	.0615	.0625	.0615	.0625

*Cents per pound on carlot orders in burlap bags of 225 lbs. approx. Add 3° F. a.m.p.

Export Prices

GASOLINE

GULF COAST—	Oct. 16	Oct. 9
U. S. Motor	.04¼	.04¼
60-62 400	.04⅜	.04⅜
61-63 390	.04½	.04½
64-66 375	.04⅝	.04⅝
LOS ANGELES, CALIF.—		
U. S. Motor grades:		
53-55 octane	.04 .04¼	.04 .04¼
55-65 octane	.04¼ .04½	.04¼ .04½
65-67 octane	.04½ .04¾	.04½ .04¾
67-69 octane	.04¾ .05	.04¾ .05
Above 69 octane	.05 .05¼	.05 .05¼
58-60 400 endpoint	.04¾ .05½	.04¾ .05½
KEROSENE		
GULF COAST—		
41-43 prime white	.04 .04⅛	.04 .04⅛
41-43 water white	.04⅛ .04¼	.04⅛ .04¼
44 water white	.04¼ .04⅜	.04¼ .04⅜
LOS ANGELES, CALIF.—		
41-43 water white	.04¼ .04¾	.04¼ .04¾
LUBRICANTS		
NEW YORK (f.a.s. in bbls.)—		
Cylinder Stocks:		
600 Warren E	.21½ .22	.21½ .22
600 S.R. unfiltered	.17½ .18	.17½ .18
650 S.R. unfiltered	.18½ .19	.18½ .19
600 flash S.R.	.17 .17½	.20 .20½
630 flash S.R.	.25 .25½	.25½ .26
Bright Stocks:		
8 color	.26 .27	.26 .27
6½ plus color, in dilution	.25 .26	.25 .26
NEUTRAL OILS		
200-3 color	.34 .35	.34 .35
150-3 color	.27 .28	.27 .28
PARAFFIN WAX (Fully Refined)		
NEW YORK (prices per pound)—		
120-122 a.m.p.	.0405 .0425	.0405 .0425
123-125 a.m.p.	.0435 .0455	.0435 .0455
125-127 a.m.p.	.0440 .0465	.0440 .0465
128-130 a.m.p.	.04¾ .0490	.04¾ .0490
130-132 a.m.p.	.0495 .0505	.0495 .0505
133-135 a.m.p.	.0540 .0565	.0540 .0565
135-137 a.m.p.	.0565 .0590	.0565 .0590

Crude Oil Gravity Table

Degrees gravity—	1 Oklahoma and Kansas	2 North Texas, Central Texas and East Central Texas	3 North Louisiana and Arkansas	4 Gray County, Texas	5 Carson, Hutchinson and Moore Counties, Texas	6 Conroe, Texas	7 Salt Creek, Wyo.	8 Gulf Coast, Texas and Louisiana	9 Gulf Coast, Texas, and Louisiana	10 Cotton Valley, Louisiana
Below 20	....	....	....	....	....	....	....	$.82	$.82	....
20-20.9	....	....	....	....	....	....	....	.84	.84	....
21-21.9	....	....	....	....	....	....	....	.86	.86	....
22-22.9	....	....	....	....	....	....	....	.88	.88	....
23-23.9	....	....	....	....	....	....	....	.90	.90	....
24-24.9	....	....	....	....	....	....	....	.92	.92	....
Below 25	*$.76	....	....	....	....	....	....	....	....	$.70
25-25.9	*.78	....	....	....	....	....	....	.94	.94	.72
26-26.9	*.80	....	....	....	....	....	....	.96	.96	.74
27-27.9	*.82	....	....	....	....	....	....	.98	.98	.76
28-28.9	*.84	....	....	....	....	....	....	1.00	1.00	.78
Below 29	.84	$.79	$.79	....	....	....	$.84	....	....	....
29-29.9	.86	.81	.81	....	....	....	.86	1.02	1.02	.80
30-30.9	.88	.83	.83	....	....	....	.88	1.04	1.04	.82
31-31.9	.90	.85	.85	....	....	....	.90	1.06	1.05	.84
32-32.9	.92	.87	.87	....	....	....	.92	1.08	1.06	.86
33-33.9	.94	.89	.89	....	....	....	.94	1.10	1.07	.88
34-34.9	.96	.91	.91	....	....	....	.96	1.12	1.08	.90
Below 35	....	....	....	$.79	$.69	....	....	....	....	....
35-35.9	.98	.93	.93	.81	.71	$1.09	.98	1.12	1.09	.92
36-36.9	1.00	.95	.95	.83	.73	1.11	1.00	1.12	1.10	.94
37-37.9	1.02	.97	.97	.85	.75	1.13	1.02	1.12	1.11	.96
38-38.9	1.04	.99	.99	.87	.77	1.15	1.04	1.12	1.12	.98
39-39.9	1.06	1.01	1.01	.89	.79	1.17	1.06	1.13	1.13	1.00
40 and over	1.08	1.03	1.03	.91	.81	1.19	1.08	1.13	1.14	1.02

Note—Effective June 1, 1934, Texas Co. purchases Texas Panhandle crude on a sweet crude and sour crude basis. Panhandle sweet crude is paid for on a basis of the Gray County prices posted above, and Panhandle sour crude is paid for on a basis of Carson and Hutchinson County prices posted above.

*The following companies purchasing crude oil in Kansas or Oklahoma, or both, begin their price schedule: Below 25°, 76 cents; 25-25.9°, 78 cents, with 2 cents added for each degree upward to 40 and over at $1.08; Carter Oil Co., Magnolia Petroleum Co., Pure Oil Co., Rock Island Refining Co., Shell Petroleum Corp., Sinclair Prairie Oil Marketing Co., Skelly Oil Co., and Wilcox Oil & Gas Co. All others begin their schedules at below 29°, 84 cents, excepting Phillex Oil Co., which begins with below 31° at 88 cents.

Column 1—Effective September 29, Texas Co. in Oklahoma; Stanolind Crude Oil Purchasing Co. in Kansas and Oklahoma; Anderson & Prichard, Inc., in Oklahoma; Bell Oil & Gas Co. in Oklahoma and Kansas; Carter Oil Co. in Oklahoma and Kansas; Deep Rock Oil Co. in Oklahoma; Derby Oil Co. in Kansas; Globe Refining Co. in Oklahoma; Golden Rule Refining Co. in Kansas; Gypsy Oil Co. in Oklahoma and Kansas; Kanotex Refining Co. in Kansas; Magnolia Petroleum Co. in Oklahoma; Mid-Continent Petroleum Corp. in Oklahoma; National Refining Co. in Kansas and Oklahoma; Shell Petroleum Corp. in Kansas and Oklahoma; Sinclair Prairie Oil Marketing Co. in Kansas and Oklahoma; Texas Co. in Oklahoma; Tide Water Oil Co. in Oklahoma; Vickers Refining Co. in Kansas; Continental Oil Co. in Kansas and Oklahoma; Empire Pipe Line Co. in Oklahoma and Kansas; Phillex Oil Co. in Kansas and Oklahoma; Pure Oil Co. in Oklahoma; Skelly Oil Co. in Kansas. Effective September 29, by White Eagle Oil Corp. in Kansas; October 1 by Barnsdall Refineries, Inc., in Oklahoma.

Column 2.—Effective September 29, by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Bell Oil & Gas Co., Continental Oil Co. Effective September 29, in the Van Fool, Van Zandt County, Pure Oil Co. posted below 29°, 84 cents, with 2 cents added for each degrees up to 40 and over at $1.08.

Column 3.—Effective September 29, by Texas Co., Magnolia Petroleum Co., Gulf Refining Co. Effective December 22, Stanolind Oil & Gas Co. in Pine Island, Louisiana, and Marion County, Texas, posted below 29°, 79 cents, with 2 cents added for each degree up to 40 and over at $1.03. Effective March 17, 1934, by Standard Oil Co. of Louisiana and Louisiana Oil Refining Co. Starting with below 25°, 71 cents, adding 2 cents for each degree upward to 40 and over at $1.03.

Column 4.—Effective September 29, by Texas Co., Humble Oil & Refining Co., Magnolia Petroleum Co., Sinclair Prairie Oil Marketing Co., and H. F. Wilcox Oil & Gas Co. On same day Phillex Oil Co. posted below 31°, 71 cents, with 2 cents added for each degree up to 40 and over at 91 cents. Effective June 1, 1934, Texas Co. (see note above).

Column 5.—Effective September 29, by Texas Co., Humble Oil & Refining Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Wilcox Oil & Gas Co., Continental Oil Co. On same day, Phillex Oil Co. posted below 31°, 61 cents, with 2 cents added for each degree upward to 40 and over at 81 cents. Effective June 1, 1934, Texas Co. (see note above).

Column 6.—Effective September 29, by Humble Oil & Refining Co. and Tide Water Oil Co. and on September 30, by Texas Co., which on September 29 had posted a schedule of $1.07 to $1.12 with a 1-cent spread on each degree.

Column 7.—Effective September 29, by Stanolind Oil & Gas Co.

Column 8.—Effective September 29, by Humble Oil & Refining Co., Gulf Pipe Line Co., Shell Petroleum Corp., Pure Oil Co., Sinclair Prairie Oil Marketing Co. On October 2, Magnolia Petroleum Co. posted Lockport, Louisiana; 30-30.9°, 84 cents with 2 cents added for each degree upward to 34 and over at $1.12, and in Cameron Meadows and Iowa, Louisiana; below 29°, 75 cents with 2 cents added for each degree up to 34 and over at $1.02. These prices were 2 cents higher on each degree than Magnolia prices posted on September 29. Effective September 29, Shell Petroleum Corp. posted in Iowa, Louisiana, district: Below 29°, 79 cents, with 2 cents added for each degree upward to 34° and over at $1; and in Black Bayou and White Castle, Louisiana: Below 29°, 80 cents, with 2 cents added for each degree upward to 34° and over at $1.16.

Column 9.—Effective September 30, Texas Co. (On September 29, Texas Co. had posted a schedule of 2 cents on each degree, but changed it on September 30).

Column 10.—Effective September 29, by Louisiana Oil Refining Co.

(California Crude Oil Prices on Page 41)

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

East Texas	$1.00
Stratman, Kans. (Sept. 29, 1933)	1.03
Corsicana* (heavy) June 17, 1933)*	.80
Other fields	(See gravity table)

Note—In East Texas, effective September 29, 1933, by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Shell Petroleum Corp., Gulf Pipe Line Co., Tide Water Oil Co., Sinclair Prairie Oil Marketing Co., Magnolia Petroleum Co., Sun Oil Co., Panola Pipe Line Co. and Empire Oil & Refining Co.

*Magnolia Petroleum Co.

West Texas

Crane, Upton, Crockett, Howard, Glasscock, Mitchell (Sept. 29, 1933)	$.70
Ector, Winkler and Pecos Counties and Lea County, New Mexico (Sept. 29, 1933)	.75
Pecos County, Yates shallow Pool (Sept. 29, 1933)*	.65
Jones and Fisher Counties*	See gravity table.

Note—Effective September 29, 1933, by Humble Oil & Refining Co., Texas Co., Gulf Pipe Line Co., Shell Petroleum Corp., Magnolia Petroleum Co., and by Stanolind Oil & Gas Co. in Winkler County, Texas.

*Shell Petroleum Corp.

Gulf Coast

Grade A and Grade B specifications discontinued by leading buyers.

(See gravity table)

Tomball (see note)*	$1.15
Livingston (Sept. 29, 1933)†	1.00
Cleveland (Jan. 11, 1934)	1.00
Greta (Sept. 29, 1933)	.85
Refugio, light	(See gravity table)
Refugio, heavy (Sept. 29, 1933)‡	.85
Markham and High Island	(See Gulf Coast gravity table)
Conroe	(See Conroe gravity table)

Note—Tomball, effective September 29, by Humble Oil & Refining Co. and October 1, by Magnolia Petroleum Co., and November 10, by Stanolind Oil & Gas Co.

*Greta posted by Texas Co. †Shell Petroleum Corp. ‡Refugio heavy, by Humble Oil & Refining Co. Cleveland (Liberty County), posted by Magnolia Petroleum Co.

South Central and Southwest Texas

(See note below table)

Darst Creek	$.87
Mirando	.80
Luling (Sept. 29, 1933)	.75
Pettus	1.05
Salt Flat	.87
Lytton Springs (Sept. 29, 1933)	.95
Duval County (Sept. 29, 1933)	.80
Saxet	.85

Note—Effective on September 29 by Humble Oil & Refining Co., in Darst Creek, Mirando, Pettus, Salt Flat and Saxet. Effective September 29 in Darst Creek by Gulf Pipe Line Co. and Texas Co. Effective October 2 by Magnolia Petroleum Co. Effective in Pettus and Salt Flat on September 29 by Humble Oil & Refining Co. and Gulf Pipe Line Co. Luling and Lytton Springs by Magnolia Petroleum Co. Duval County by Texas Co. Saxet, effective September 29, by Humble Oil & Refining Co. and Texas Co.

(Continued on Page 41)

TANK WAGON MARKETS

Quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, include taxes

October 16, 1934

Taxes

The gasoline quotations given in the following tables include the 1 cent Federal tax, as well as state, county and city taxes. The gasoline quoted is the regular or standard grade. In most marketing areas a third grade and a premium grade are also available.

Discounts

Under the standard form of commercial consumer contract which went into effect March 1, 1934, save in California, Oregon, Washington, Arizona and Nevada, a discount of 1 cent a gallon off tank wagon, or 2 cents a gallon off retail prices, is permitted for purchases running between 4,000 and 10,000 gallons a month, and 2 cents a gallon off tank wagon, or 4 cents a gallon off retail prices, for purchases in lots of more than 10,000 gallons a month. The minimum delivery is 25 gallons.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax	Kero. tank wagon
Denver, Colo...	18.0	20.0	5.0	12.5
Pueblo	18.0	20.0	5.0	11.0
Grand Junction	20.5	22.5	5.0	15.0
Casper, Wyo. ..	18.0	20.0	5.0	11.5
Cheyenne	18.0	20.0	5.0	13.0
Butte, Mont. ..	21.0	23.0	5.0	17.5
Billings	21.0	23.0	6.0	16.5
Helena	22.0	25.0	6.0	17.5
Great Falls ...	21.5	23.5	6.0	17.5
Salt Lake, Utah	19.0	21.0	5.0	16.0
Boise, Idaho ..	22.5	24.5	6.0	18.0
Twin Falls ..	22.5	24.5	6.0	18.0
Albu'que, N. M.	18.0	20.0	*7.0	13.0

*One-cent city tax.

Effective March 1, 1934, discount to dealers with or without contract throughout Continental territory: Undivided dealer discount off service station price, 4 cents; divided dealer accounts, 2½ cents.

Standard Oil Co. (Indiana)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax	Kero. tank wagon
Chicago	13.3	13.3	4.0	8.0
Decatur, Ill. ..	14.7	16.7	4.0	10.2
E. St. Louis ...	14.4	16.4	4.0	9.5
Joliet	14.8	16.8	4.0	10.2
Peoria	14.7	16.7	4.0	10.2
Quincy	14.6	16.6	4.0	10.0
Davenport, Ia..	14.5	16.5	4.0	10.1
Des Moines ...	14.4	16.4	4.0	10.1
Mason City ...	14.7	16.7	4.0	10.1
Sioux City	14.6	16.6	4.0	9.7
Duluth, Minn. .	15.3	17.3	4.0	10.4
Mankato	15.0	17.0	4.0	9.5
Minneapolis ...	16.0	16.0	4.0	10.4
LaCrosse, Wis..	15.0	18.0	4.0	10.5
Green Bay	16.2	18.2	5.0	10.2
Milwaukee	14.6	16.6	5.0	9.0
Madison	16.0	18.0	5.0	9.9
Detroit, Mich .	16.0	18.0	4.0	10.5
Grand Rapids .	15.7	17.7	4.0	10.2
Saginaw	16.0	18.0	4.0	10.5
Evansville, Ind.	16.3	18.3	5.0	10.0
Indianapolis, ..	16.4	18.4	5.0	10.2
South Bend	16.7	18.7	5.0	9.0
Fargo, N. Dak.	16.0	18.0	4.0	11.4
Huron, S. Dak.	16.5	18.5	5.0	11.4
Sioux Falls ...	15.9	17.9	5.0	10.9
Kans. C., Mo.* .	13.9	15.9	4.0	7.5
Springfield ...	13.6	15.6	3.5	8.8
St. Louis	13.7	14.7	3.5	9.7
St. Joseph* ...	13.9	15.9	4.0	7.3
Wichita, Kans..	13.5	15.5	4.0	7.5
Bartlesville, Ok.	16.0	18.5	5.0	8.5

*State tax 2 cents, 1-cent city tax and 1-cent Federal tax.

Discounts to dealers, effective March 1, 1934: Undivided accounts, 4 cents a gallon on Red Crown Ethyl and Standard Red Crown, divided accounts, 2½ cents a gallon on Red Crown Ethyl and Standard Red Crown.

Stanolex Furnace Oil in Chicago

Effective Sept. 6, 1934, f.o.b. Chicago tank wagon prices: No. 1 (36-40 lt. stw. zero), less than 100 gallons, 8¼ cents; 100-149 gallons, 7¼ cents; 150 gallons or more, 6¾ cents; No. 2 (30-34, stw. zero), less than 150 gallons, 7½ cents; No. 3 (32-36, zero), less than 150 gallons, 7 cents; No. 4 (12-16, zero), less than 400 gallons, 6½ cents; viscosity of No. 4, 90-115 at 100° F.; No. 5, less than 400 gallons, 5¾ cents. For deliveries of more than stated quantities of Nos. 2, 3, 4 and 5, deduct 1 cent.

Naphtha

	Tank wagon*
Oleum spirits	16.9
V.M.&P. naphtha	18.0
Cleaners' naphtha	18.0
Stanisol	18.0

*Prices include 3-cent Illinois tax, but not 1-cent Federal tax.

Prices f.o.b. Chicago, September 12, 1933. Each of above prices subject to discount of 1 cent per gallon for 150-gallon lots if covered by contracts.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax	Kero. tank wagon
Atlanta, Ga. ..	19.0	22.0	7.0	14.5
Augusta	20.0	22.0	7.0	14.5
Macon	20.0	22.0	7.0	14.5
Savannah	19.0	21.0	7.0	14.0
Birm'ham, Ala..	18.0	20.0	8.0	11.0
Mobile	20.5	22.5	8.0	13.0
Montgomery ..	21.5	23.5	8.0	16.0
Jackson, Miss..	18.5	20.5	8.0	13.0
Vicksburg	18.0	20.0	7.0	13.0
Jack'ville, Fla..	17.0	20.0	8.0	11.5
Miami	18.0	20.0	8.0	13.5
Pensacola	17.0	19.0	8.0	13.5
Tampa	18.0	20.0	8.0	12.5
Lexington, Ky..	18.5	20.5	6.0	11.5
Covington	16.0	17.0	6.0	11.5
Louisville	18.0	20.0	6.0	11.0
Paducah	18.0	20.0	6.0	11.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 2 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia and Mississippi include 1 cent state tax; in Alabama, an inspection fee of one-half cent on kerosene and one-fortieth cent on gasoline; in Florida an inspection fee of one-eighth cent on kerosene and gasoline. To Pensacola, Mobile and Birmingham state taxes on gasoline add 1 cent city tax.

Southwestern District

MAGNOLIA PETROLEUM CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax	Kero. tank wagon
Dallas, Tex. ..	14.0	16.0	5.0	6.0
Fort Worth ...	14 0	16.0	5.0	7.0
Houston	15.0	17.0	5.0	8.5
San Antonio ..	16.0	18.0	6.0	8.5
El Paso	18.5	20.5	5.0	11.0
Muskogee, Ok..	16.0	18.0	5.0	6.0
Okla. City	15.0	17.0	5.0	7.0
Tulsa	16.0	18.0	5.0	7.5
Ft. Smith, Ark.	13 5	15.5	5.0	8.0
Little Rock ...	15.0	17 0	7.5	9 0
Texarkana	17.0	19.0	5.0	8.0

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax	Kero. tank wagon
Atl'tic City, N.J.	19.0	18.5	4.0	10.0
Newark	18.2	17.8	4.0	9.5
Annapolis, Md..	19.6	19.1	5.0	10.0
Baltimore	19.1	18.6	5.0	9.5
Cumberland	20.6	20.1	5.0	12.7
Wash'g'n, D. C.	17.2	16.8	3.0	11.5
Danville, Va. ..	21.7	21.2	6.0	12.9
Norfolk	20.2	19.7	6.0	11.3
Petersburg	20.5	20.0	6.0	11.4
Richmond	20.5	20.0	6.0	11.7
Roanoke	21.8	21.3	6.0	12.9
Charle'n, W. Va.	20 0	19.5	5.0	12.6
Parkersburg ..	19.3	18.8	5.0	11.2
Wheeling	20.0	19.0	6.0	13.2
Charlotte, N. C.	23.4	22.0	7.0	13.5
Hickory	23.7	21.0	7.0	13.7
Mt. Airy	23.7	21.2	7.0	13.8
Raleigh	23.2	22.7	7.0	13.3
Salisbury	23.5	15.0	7.0	13.6
Charleston, S.C.	21.3	20.7	7.0	11.3
Columbia	23.0	11.0	7.0	13.2
Spartanburg ..	23.4	22.5	7.0	13.5

Price basis to dealers: Divided dealers at dealer price, which is 2½ cents above tank car; undivided dealers at regular price less one-half cent. Discount for kerosene, 1 cent off tank wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except in New Jersey, where no discount is given.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax	Kero. tank wagon
Omaha	17.0	17.4	5.0	10.0
McCook	17.7	18.7	5.0	10.7
Norfolk	17.4	17.9	6.0	10.4
North Platte ..	17.8	18.3	5.0	10.0
Scottsbluff	18.3	18.3	5.0	9.0

Note—Discount to dealers, including any rentals under lease and agency agreements: Undivided accounts, Standard Red Crown and Red Crown Ethyl Gasoline 4 cents. Reliance (third brand) 3 cents, under service station price. Divided accounts, Standard Red Crown Ethyl Gasoline 2½ cents. Reliance (third brand) 2½ cents under service station price. Discounts to consumers covered only by form CD-1, official commercial consumer contract.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax	Kero. tank wagon
N. Orleans, La..	18.8	18.3	*7.0	†12.0
Baton Rouge ..	18.2	17.7	6.0	†12.0
Alexandria	19.1	18.6	*7.0	†10.0
Lafayette	19.3	18.8	*7.0	†12.0
Lake Charles ..	19.2	18.7	*7.0	†12.0
Shreveport	17.0	13 0	6.0	†10.0
Knoxville, Tenn.	22.7	21.5	8.0	13.5
Memphis	21.5	20.6	8.0	10 5
Chattanooga ...	22.5	18.0	8.0	11.0
Nashville	22 0	21.5	8.0	12.0
Bristol	22.5	19 0	8.0	14.0

*Includes city tax of 1 cent. †Louisiana kerosene prices include 1-cent state tax.

Price bases to dealers: Divided dealers at dealer price, which is 2½ cents above tank car; undivided dealers at dealer price less one-half cent.

Pacific Coast Territory.

STANDARD OIL CO. OF CALIFORNIA*

	Gasoline: Tank wagon†	Gasoline: Posted retail	Gasoline: Incl'ds tax	Kero. tank wagon
San Francisco .	16.5	18.5	4.0	12.5
Los Angeles ..	15.5	17.5	4.0	12.5
Fresno, Calif. ..	17.0	19.0	4.0	14.0
Phoenix, Ariz..	20.0	22.0	6.0	‡16.0
Reno, Nev.	16.5	18.5	5.0	15.5
Portland, Ore..	19.0	21.0	6.0	13.5
Seattle, Wash..	19.0	21.0	6.0	13.5
Tacoma	19.0	21.0	6.0	13.5
Spokane	22.0	24.0	6.0	18.0

*Retail prices posted by Standard Stations, Inc., a subsidiary.

†Prices are at company's plant or depots, as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent.

‡Includes 5-cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax	Kero. tank wagon
Philadelphia, Pa.	14.5	16.5	4.0	10.0
Pittsburgh	15.0	17.0	4.0	10.0
Allentown	14.5	16 5	4.0	10 0
Erie	15.0	17 0	4.0	9 0
Scranton	15.0	17.0	4.0	10.0
Altoona	15.0	17.0	4.0	10.0
Dover, Del.	15.0	17.0	4.0	10 0
Wilmington ...	14.5	16.5	4.0	9.0
Springf'd, Mass.	12.5	13.0	4.0	8.25
Worcester	12.5	13.0	4.0	8.5
Hartford, Conn.	14.0	16.0	3.0	7.5
New Haven ...	14.0	16.0	3.0	7.5
Providence, R.I.	11.0	11.5	3.0	8.0

Note—Tank wagon prices are those applicable to consumers purchasing lots of 100 or more gallons in one delivery.

New York and Part of New England

STANDARD OIL CO. OF NEW YORK

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax	Kero. tank wagon
Albany, N. Y. ..	16.0	16.0	4.0	9.0
Met. New York	16.5	17.5	4.0	8.5
Buffalo	16.5	17.5	4.0	9.0
Rochester	16.5	17.5	4.0	9.25
Syracuse	16.5	17.5	4.0	9.25
Boston, Mass. .	12.0	13.0	4.0	8.5
Portland, Me. .	17.5	18.5	5.0	8.75
Manch't'r, N.H.	16.5	17.5	5.0	8.75
Burlington, Vt.	19.0	20.0	5.0	9.75

Commercial consumers allowed 2 cents discount below service station prices in accordance with CD-1 of oil industry's code.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax	Kero. tank wagon
Ohio points ...	15.5	17.5	5.0	*12.5

*Includes state tax of 1 cent, effective July 22.

Canada*

IMPERIAL OIL, LTD.
Imperial 3-Star Gasoline

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax	Kero. tank wagon
Hamilton, Ont..	†21.0	23.5	6.0	17.1
Toronto, Ont..	†21.0	23.5	6.0	17.1
Brandon, Man..	30.3	33.3	7.0	21.1
Winnipeg, Man.	28.7	31.7	7.0	20.1
Regina, Sask...	29.0	33.0	6.0	21.1
Saskatoon, Sask.	31.3	34.3	6.0	24.1
Edmonton, Alta.	31.2	34.2	6.0	23.7
Calgary, Alta..	28.5	31.5	6.0	21.1
Vancouver, B.C.	†28.0	30.0	7.0	24.6
Montreal, Que..	24.0	27.0	6.0	17.6
St. John, N.B..	26.0	30.0	7.0	21.1
Halifax, N.S. ..	26.0	30.0	8.0	21.1

Imperial gallon used in Canada. †Governed by service station price.

Maritime provinces, all deals 4 cents off service station price. All other provinces open dealers 2.5 cents off service station price and 1 cent additional to 100 per cent accounts.

Retail Price Changes

Regular-Grade Gasoline and Kerosene

Standard Oil Co. of Indiana, October 8, reduced tank wagon gasoline one-half cent in Chicago; October 12, reduced it 1 cent further. October 11, reduced station gasoline 1 cent in Chicago. October 11, reduced station gasoline 1 cent in Minneapolis. October 11, reduced station gasoline 1 cent in St. Louis; October 15, advanced tank wagon gasoline 1.1 cents and station gasoline 2.2 cents in Milwaukee.

Standard Oil Co. of New Jersey, October 2, reduced station gasoline 2 cents in Salisbury.

Standard Oil Co. of Louisiana, September 29, reduced station gasoline one-half cent in Chattanooga; October 6, reduced it one-half cent further; October 9, reduced it one-half cent further; October 11, reduced tank wagon gasoline 2 cents. October 2, reduced station gasoline one-half cent in Bristol; October 3, reduced it one-half cent further; October 6, reduced it one-half cent further; October 10, reduced it one-half cent further; October 11 reduced tank wagon gasoline 2 cents. October 3, reduced station gasoline 1 cent in Shreveport; October 6, reduced it 1 cent further; October 11, reduced tank wagon gasoline 2 cents. October 6, reduced station gasoline 2 cents in Knoxville; October 7 advanced it 1 cent; October 11, reduced tank wagon gasoline 2 cents. October 11, reduced tank wagon gasoline 2 cents and station gasoline 1.7 cents in New Orleans; reduced tank wagon and station gasoline 2 cents in Baton Rouge, Lafayette and Lake Charles; reduced tank wagon gasoline 2 cents and station gasoline 1.9 cents in Alexandria and Memphis; reduced tank wagon gasoline 2 cents and station gasoline 1 cent in Nashville.

Atlantic Refining Co., October 12, reduced tank wagon and station gasoline 1 cent in Philadelphia, Pittsburgh, Allentown, Erie, Scranton, Altoona, Dover and Wilmington. October 10, reduced tank wagon gasoline 2.5 cents and station gasoline 4 cents in Springfield. October 3, reduced tank wagon gasoline one-half cent in Worcester; October 6, reduced tank wagon and station gasoline 1.5 cents; October 10, advanced them 1.5 cents. October 3, reduced station gasoline 1.5 cents in Providence; October 5, reduced tank wagon gasoline one-half cent; October 6, reduced tank wagon and station gasoline one-half cent; October 8, reduced station gasoline one-half cent.

Magnolia Petroleum Co., October 8, reduced tank wagon kerosene 1.5 cents in Oklahoma City. October 14, reduced tank wagon and station gasoline 4 cents in Little Rock. October 15, reduced tank wagon and station gasoline 3 cents in Fort Smith; advanced tank wagon and station gasoline 2 cents in Fort Worth, and 4 cents in Dallas.

Standard Oil Co. of New Jersey has made substantial changes in the gasoline tank wagon and service station prices at practically all points throughout its marketing territory, most of which were re-

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NATURAL GASOLINE MANUFACTURE

Kettleman North Dome Adds Compressor Unit

The Kettleman North Dome Association has just started installation of a new booster plant in the North Dome and plans call for completion of the job early in December. The new installation, which will consist of six units capable of handling 12,000,000 feet of natural gas daily, will be located in Section 30-21-17. Kenda's first compressor plant, comprising five units capable of handling 10,000,000 feet of gas per day, were erected a little over a year ago in Section 28-21-17. These 11 units will greatly increase the flexibility of operation and are necessary because of varying pressures in producing wells.

In contrast with the usual method of operation in Los Angeles Basin fields, the Kettleman North Dome Association's compressor plants are being used as booster plants to move wet gas from the central gathering system to natural gasoline plants. As a result of this operation, the association has installed several collectors or drip chambers along the wet gas pipe line and thus the natural gasoline that drops out of the wet gas enroute to the absorption plant is trapped and recovered. The quantity of natural gasoline recovered in this manner is rather large as the wet gas is moved several miles to the absorption plants under pressure.

In addition to constructing the new six-unit compressor plant, Kenda is installing two conservation units which are designed to recover vapors off the crude oil tanks and natural gasoline storage facilities. This will substantially increase efficiency of operation as the high temperatures which prevail at Kettleman Hills during the summer months exert quite an influence on this light refining crude. Even during the winter, evaporation is an important problem because when the Elliott zone wells are opened up to meet the increased demand for natural gas they likewise produce a white oil which shows a gravity of approximately 60° A.P.I.

Kenda's new compressor units in addition to increasing efficiency of operation and providing a greater flexibility will permit the maintenance of 450 pounds discharge pressure at the point where dry gas is delivered into pipe line facilities of the Pacific Gas & Electric Corp. and the Southern California Gas Co. for transmission to commercial consumers throughout the State. Kenda is obliged to deliver dry gas into the facilities of public utilities at a minimum pressure of 450 pounds in order to keep the stream moving up to the P. G. & E. Corp.'s booster plant in Section 25-21-17, from which point sufficient booster plants have been erected to keep the gas stream moving to the San Francisco Bay region. It is especially necessary for Kenda to maintain this pressure at points north of the P. G. & E. booster plant in Section 25 because it must buck the pressure of the main transmission line. The Kettleman North Dome Association has a very complete system of crude oil and natural gas pipe lines in the North Dome as it has been the policy of the association to make pipe line deliveries from a central tank farm. Kenda moves its production to its tank farm in Section 31-21-18, and makes deliveries to pipe line companies from that point. This tank farm, which is only large enough to provide sufficient working space, is located out on the north flank of the structure outside of the potentially productive acreage.

Construction of the new compression plant is being supervised by the Fluor Corp.

Water Is Sometimes Difficult to Find in the West Texas Fields

Water is more difficult to find than oil in some parts of the West Texas area and is less plentiful than gasoline in many more areas. However, in striving to recover the natural gasoline contained in the gas produced in that vast expanse the Phillips Petroleum Co.'s engineers have failed to supply adequate cooling water for the plants erected and E. W. Erwin offers an interesting discussion of the problem these engineers faced and also supplies an insight to the solution of the problem in the latest issue of the Phillips Shield, the house organ of the Phillips Petroleum Co. Mr. Erwin states:

"The water at Phillips' McCamey and Judkins gasoline plants in the western district of Central Texas is remarkably pure and soft. Its lime content, or hardness is almost zero and it contains a minimum of foreign matter. Both of these qualities derive from the fact that the water never touches limestone and is filtered through many feet of sand before reaching the level from which it is pumped to our plants. Consequently, the only undesirable element present is a certain amount of dissolved silica, and all in all, the water is excellent for both industrial and human consumption.

"When I first came to this district, I was very curious about the water supply for the plants. This whole country seems to be nothing but desert and snakes and more desert, so I marvelled that there should be a plentiful source of soft, palatable water. When I ventured a question or two, the answer would always be 'Haven't you been out to the water station yet? . . No? . . Well, wait till it rains and we'll take a trip out there.'

"For months I waited for the rain, and since it never came, A. W. Paris, district superintendent, decided to satisfy my curiosity without further delay and to make the trip, rain or no rain. I had never been able to figure out the significance of the 'if it rains' clause until we started, when after a short tussle with the thirsty sand, it bogged down on me with full meaning.

"Before we started, Carl Fisher, McCamey plant superintendent, gave me some advice. I'd better take a shovel, he said, and be sure we let most of the air out of the tires.

"When we arrived at the station, I thought all the work and trouble were behind. Somehow, I expected to find the wells in a nice little circle about the big receiving tank. No such luck! There wasn't a well in sight—only a main line pouring its liquid content into the tank, coming somewhere from out of the desert, and a 4-inch return air pressure line which wandered off among the sand hills until it was lost. This big receiver tank proved to be the ground story of an old oil storage tank and has a capacity of 12,000 bbls. We got a drink of water, remarked about the hot weather, took a snapshot or two of the water tank and the engine house, and decided to take a peek at some of the wells and sand dunes. Mention of the engine house recalls the fact that the exhausts from the four 80-horsepower Bessemer gas engines used to lie underground when the station was first installed about six years ago. These pipes developed the ungainly tendency to rise up from their sandy graves and break off from the engine house, hence, the superintendent changed them by putting them above ground. The 'coming up' was explained simply by the manner in which every pulsation of the engines allowed sand to seep under the pipes, thereby steadily pushing them upward. Three of these engines are in constant use, two of which supply both pumping and air compressing power, the third supplying compressed air.

"Since even the line-walkers sometimes experience difficulty in finding the water wells, we did not feel so badly when we took the left sand rut instead of the right and went off chasing jack-o-lanterns across the sand hills. We tramped and tramped as well as one can without snowshoes and nary a well did we find. We did find, though, a few arrowheads and any number of wind-drifting sand dunes, but we searched in vain for the wells. For some peculiar geologic reason these sand hills resemble sponges in their inclination to attract and hold water. Years ago the Indians camped here for water and came here to make arrowheads. One can dig down in the sand and find moist sand just a few inches below the surface; water may be struck only a few feet farther.

"Finally we decided that it would be wiser to go back to the main line and follow it until we found the wells. (It must be mentioned that that first wild goose chase was supposedly a short cut to the wells via auto, but we took the wrong road and found nothing.) This we did, and after trekking 1 mile down the line, we were promptly rewarded with a nice flowing well. We washed the sand from our throats and began our search for bigger and better wells. We finally found No. 25 at its usual place at the end of the line, but it was not flowing. I skinned up the 15-foot support and scooted, simian-like, out to the top of the well and found it filled with wet sand. Shortly afterwards, this well was cleaned and it is now the biggest producer of the lot. Its maximum flow is 3,500 bbls. daily.

"The wells range from 140 to 150 feet in depth. The depth of the sand averages about 50 feet, and it is this sand layer which supplies the water. The extra 100 feet below serves as a column of water which lends sufficient back pressure or head to force the water out through the 2½-inch return line which is enclosed in casing together with a 1-inch compressed air line. The casing is 10-inch perforated pipe through the water sand; below, it swages to 6⅝-inch pipe which extends down about 100 feet. The return flow line and air pressure line extend nearly to the bottom of this smaller casing. The water is forced up the 2½-inch into a 24-inch receiver pipe at the top, where it then flows by gravity through a 4-inch branch line to the main 10-inch gravity line which carries it to the receiver tank at the station. The maximum capacity of the 25 wells is 35,000 bbls. daily. They are now producing 12,000 bbls. per day, 3,600 of which go to Judkins plant which lies 14 miles north of the station, the remaining 8,400 bbls. of which go to the McCamey plant for sale and plant consumption. The McCamey plant lies 11 miles southeast of the water station.

"The wells must occasionally be 'desanded.' The casing is pulled until flow is obtained with application of air pressure. Then the casing is lowered while the flow of water and sand is maintained,

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Heads Oil Section of the National Safety Council

G. O. Lockwood, Empire safety director, was elected general chairman of the petroleum section of the National Safety Council at the recent meeting of the National Safety Congress at Cleveland, Ohio. He previously had served as chairman of two subcommittees.

Mr. Lockwood was chairman of the Mid-Continent Petroleum Safety Coun-

G. O. LOCKWOOD

cil in 1932, and chairman of the executive committee of the International Petroleum Exposition's first aid committee which placed him in charge of the first aid contest in Tulsa this year.

The new petroleum section chairman has been safety director of the Empire Companies, Bartlesville, Okla., for four years, coming from the Dewey Portland Cement Co. where he was similarly employed. He is also a member of the American Petroleum Institute's accident and fire prevention committees.

BULK OF EXPORTS LEAVES GULF

Refiners in the United States moved 193,142 bbls. of natural gasoline to foreign markets in August; The bulk of the export went to Canada, with Sweden and the United Kingdom absorbing equal parts of the remainder. The chief points of clearance were located on the Gulf, approximately three-quarters of the movement clearing through Galveston and New Orleans. Canadian border districts handled all remaining exportations.

Purchases of U. S. Natural Gasoline August, 1934

	Bbls.
United Kingdom	40,668
Sweden	42,449
Canada	110,025
Total volume	193,142
Total value	$285,664

Customs Districts Through Which Cleared

	Bbls.
Buffalo	7,857
Sabine	19,244
Galveston	83,117
Montana and Idaho	781
Dakota	6,456
Michigan	3,581
Duluth and Superior	774
New Orleans	71,332
Total	193,142

NEWS FOR PETROLEUM REFINERS

Chicago Dealer Margins Reduced by Agreement

CHICAGO, Oct. 15.—Agreement to an adjustment of dealer margins on gasoline was obtained at a meeting of representative major and independent refiners at the Blackstone Hotel, October 12. The adjustment is in the nature of a definite reduction on all grades of gasoline, excepting in Chicago, where change will be limited to a small cut on regular grade gasoline. Refiners and petroleum administration officials who attended the meeting said they feel the move will be a constructive one for the industry.

A moratorium on solicitation of resale accounts will go into effect October 17, at which time holders of the old dealer contracts will be notified of cancellation of contracts, actual termination of the contracts at the end of the 30-day cancellation clause to be November 17 at which time the new contract will be effective.

New margins for Chicago: 4, 3½ and 3 cent with a down stop of one-half cent on subnormal prices, the dealer participating in half the decline to that extent. New margins for all other territory: 3½, 3 and 2½ cents with down stop of one-half cent on subnormal prices, the dealer participating in half the decline to that extent. The dealer protection can be applied at the discretion of the supplier and is also to be tied up with a certain percentage of decline. This schedule is predicated on the new policy of Standard Oil Co. of Indiana in placing retail prices 5½ cents above the delivered tank car price. In the opinion of some observers this plan involves a definite improvement in the jobber's position.

WISCONSIN PRICE FIXING

CHICAGO, Oct. 16.—Standard Oil Co. (Indiana) has asked for an injunction in Federal Court at Milwaukee to restrain the Wisconsin State Department of Markets from enforcing its new gasoline price fixing order for Milwaukee County, Wisconsin. The company particularly attacks the differential provision in the order providing for one-half cent lower retail price for individual brand products. The company, October 15, however, advanced prices there in compliance with the order. New regular gasoline tank wagon price at Milwaukee is 14.6 cents and service station 16.6 cents.

CUSHING LICENSES DUBBS UNIT

CHICAGO, Oct. 13.—Cushing Refining & Gasoline Co. has just taken a Dubbs license. The agreement was signed by R. H. Winget, vice president and general manager of the company.

Several months ago construction of a cracking unit was begun in the company's Cushing refinery, according to the design and under the supervision of the company's own engineers.

It is this unit which is now nearing completion that is to be operated under Dubbs license.

Immediately following signing of the license agreement, five Universal engineers left for Cushing to complete the unit to operate in line with the most modern Dubbs practice. It is expected that the unit will shortly be in operation.

SHELL DEWAXING UNIT

Completion of the Shell Petroleum Corp.'s propane dewaxing unit at its Wood River refinery is expected to be completed by the close of January. Work was started September 1 and all of the foundations have been poured. Construction of the unit is under the direction of the Fluor Corp.

Canadian Oil Companies Will Launch Extensive Refinery Expansion Program

PETROLIA, Ontario, Oct. 13.—Between $350,000 and $400,000 will be spent in the next six or seven months by Canadian Oil Companies, Ltd., in modernizing and expanding its refinery here. This is in addition to preliminary work already commenced.

For several years the directors have been considering the improvement and enlargement of the present plant or its possible removal to an entirely new location. The ultimate decision, in view of the satisfactory location, favorable labor situation and large investment already made, has been to enlarge the Petrolia plant.

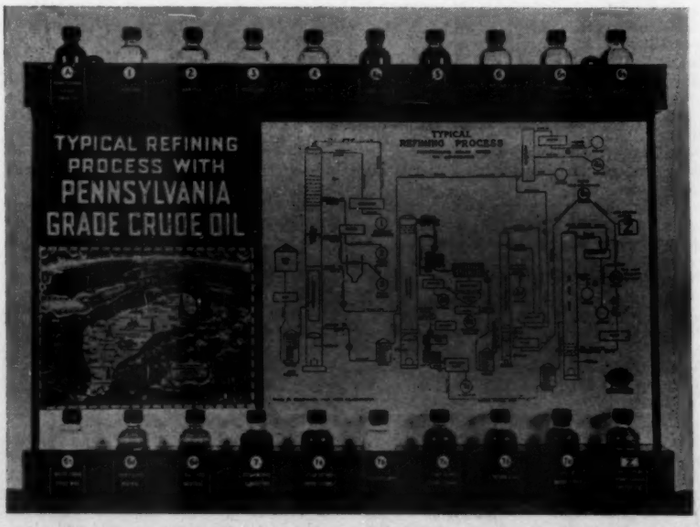
The new addition will include a topping and cracking unit, a vapor recovery, water cooling system and a continuous recovery system. New lines will be laid to gather the exhaust steam for use in processing in the various departments. In full operation the new unit will not merely double the present "throughput" of the Petrolia refinery, but will put the company in a position if required to quadruple the present output of gasoline and petroleum products. The cracking unit and accompanying revamping of the older plant will make the refinery one of the most flexible plants in Canada, capable of producing to meet fluctuating market requirements.

The new additions will be located south of the present plant, and will consist of the topping and cracking unit, a vapor recovery plant, a water-cooling tower and pump houses and a continuous treating plant. They will involve also the erection of 12 more upground storage tanks of 2,000 to 5,000 bbls. capacity each. The topping and cracking unit will consist of a tube still and steel tower 90 feet high. The vapor recovery or gas absorption plant consists of a compressor and two steel towers 60 feet high, this plant gathering the vapors from all the stills and tankage, compressing the wet gas, extracting all the gasoline and leaving the dry gas to be burned as fuel throughout the refinery. The water cooling tower will be 40 feet high, 15 feet wide and 108 feet long, and will take the water from the old plant and prepare it for use again in the new plant, thus enabling the whole refinery to operate with not more than 5 per cent addition to the present water supply. California redwood and Louisiana cypress will be used in the construction.

Between 25 and 30 men will be engaged in preparatory work and construction, and when the plant is completed between 15 and 20 will be permanently employed, bringing the complement of employes to between 140 and 150. The new plant will require the continuous use of between 200 and 300 horsepower electrical energy from the Petrolia hydro-electric system.

Canadian Oil Companies, Ltd., is the Canadian subsidiary of the National Refining Co. of Cleveland, which in 1909 took over the original small plant established by a small independent company. The officers of Canadian Oil Companies, Ltd., are: President, Frank B. Fretter, Cleveland; vice president and general manager, F. H. Littlefield, Toronto; assistant general manager and treasurer, F. C. West; secretary, H. C. Hoecker, Toronto. Cloyd A. Hale of Petrolia is superintendent of the plant since 1917.

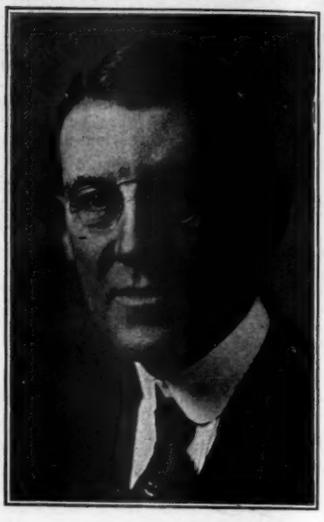
Chart and Samples Tell the Complete Story



This display rack and exhibit has been prepared by the Pennsylvania Grade Crude Oil Association for use in chemistry classes in schools and colleges. It consists of a flow chart of the complete process of refining Pennsylvania grade crude, a map of the producing area of the crude and samples of products refined from it. About 300 of these displays have been distributed to classrooms in 29 states. The exhibit and a supply of bulletins to be used as texts are sent free of charge to recognized schools when written application is made on school stationery to the association.

F. S. Fales Appointed New Socony-Vacuum Treasurer

F. S. Fales has been named treasurer of the Socony-Vacuum Oil Co., Inc., succeeding Richard P. Tinsley, who recently retired after 42 years of service. Mr. Fales, the newly elected treasurer, has been identified with the company for 31



F. S. FALES

years. He joined the Standard Oil Co. in 1903 as assistant manager of the manufacturing department. In 1919 he was elected director and also president of the Standard Transportation Co., a subsidiary in charge of the marine operations of this company. In 1932 he became president of the Standard Oil Co. of New York, and following the merger with the Vacuum Oil Co., became vice president and a director of Socony-Vacuum. Mr. Fales is also a member of the company's executive committee.

Mr. Tinsley joined the Standard Oil Co. in 1892. In 1911 he was elected treasurer of the Standard Oil Co. of New York. In 1932 he was elected secretary and treasurer of the Socony-Vacuum Oil Co., Inc., which position he held until his retirement.

W. D. Bickham, the new secretary of the Socony-Vacuum Oil Co., Inc., was formerly assistant secretary, and prior to the merger, held a similar position with the Vacuum Oil Co.

GIBSON OIL BUYS STATIONS

Seven former Dale Moore service stations in Tulsa have recently been acquired by the Gibson Oil Co. of Fort Smith, Ark. An outgrowth of the old Gibson company, the new firm will be the exclusive distributors of Standard Oil Co. (Indiana) products in the Tulsa territory.

REFINERY OVERHAULED

COUTTS, Alberta, Oct. 13.—The British American Oil Co. has completed the annual overhauling of its refining plant here, in preparation for winter operations.

OIL STORAGE FIRE

BOW ISLAND, Alberta, Oct. 13.—Damage estimated at $20,000 was caused by a fire which recently destroyed the local storage plants and tanks owned by Imperial Oil, Ltd., the British American Oil Co., and the Prairie Cities Oil Co.

THIS METAL

has Acid Licked!

No. 18803 Flanged Globe Valve

WHERE WORKING TEMPERATURES ARE HIGH VALVES OF THIS SUPERIOR METAL OFFER EXCELLENT RESISTANCE TO CORROSIVE OILS AND OIL VAPORS

SPECIFY CRANE No. 18.8 Chrome-Nickel Alloy

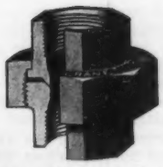
Here is a metal worthy of your attention . . . here are valves worthy of a place in every refinery where corrosion is severe. Crane Co. announces a new line of valves made of Crane No. 18.8 Chrome-Nickel Alloy . . . an alloy highly resistant to corrosion . . . a valve that will earn many applications in the oil industry. All valves are regularly cast from standard patterns. That insures interchangeability of renewable parts. These valves have the lightest wall sections consistent with the production of sound castings . . . nothing in these valves in design or manufacture has been overlooked . . . every foundry process is under supervision of the Metallurgical department. *Every machining operation* is controlled by the most elaborate gauging system used in the piping industry today! You can count on Crane No. 18.8 Chrome-Nickel Alloy to stand up in severe service anywhere!

No. 18801 Screwed Globe Valve

No. 18840 Screwed Gate Valve

No. 18868 Screwed Tee

No. 18869 Flanged Tee



No. 18890 Screwed Union

No. 18841 Flanged Gate Valve

NRA

CRANE

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VALVES, FITTINGS, FABRICATED PIPE, PUMPS, HEATING AND PLUMBING MATERIAL

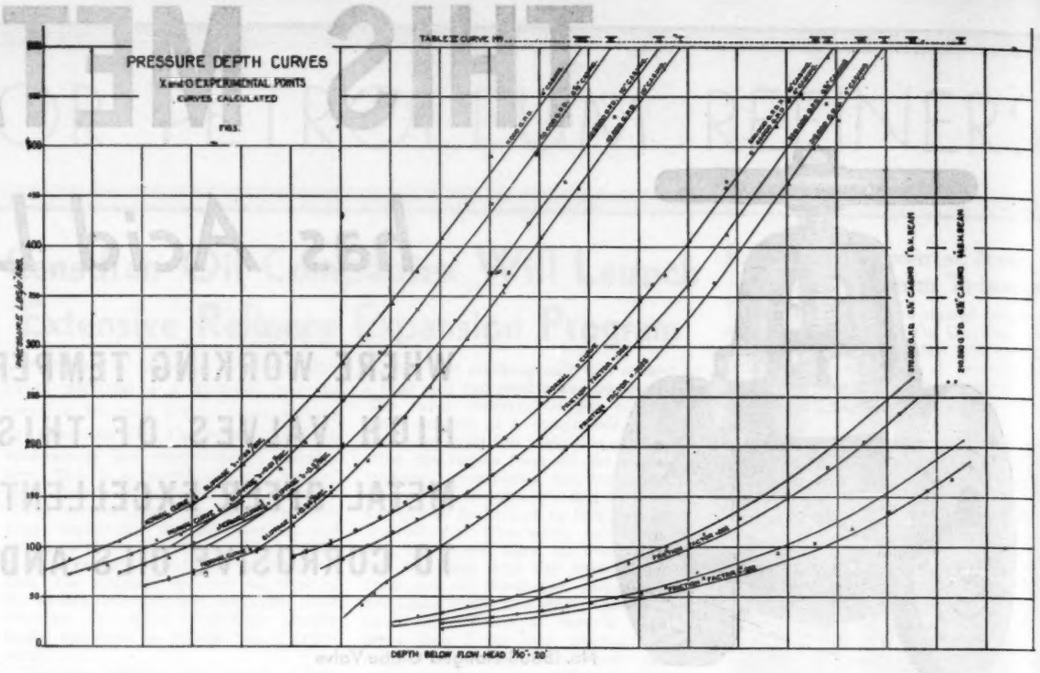
Efficiency of Flowing Wells in Persian Field

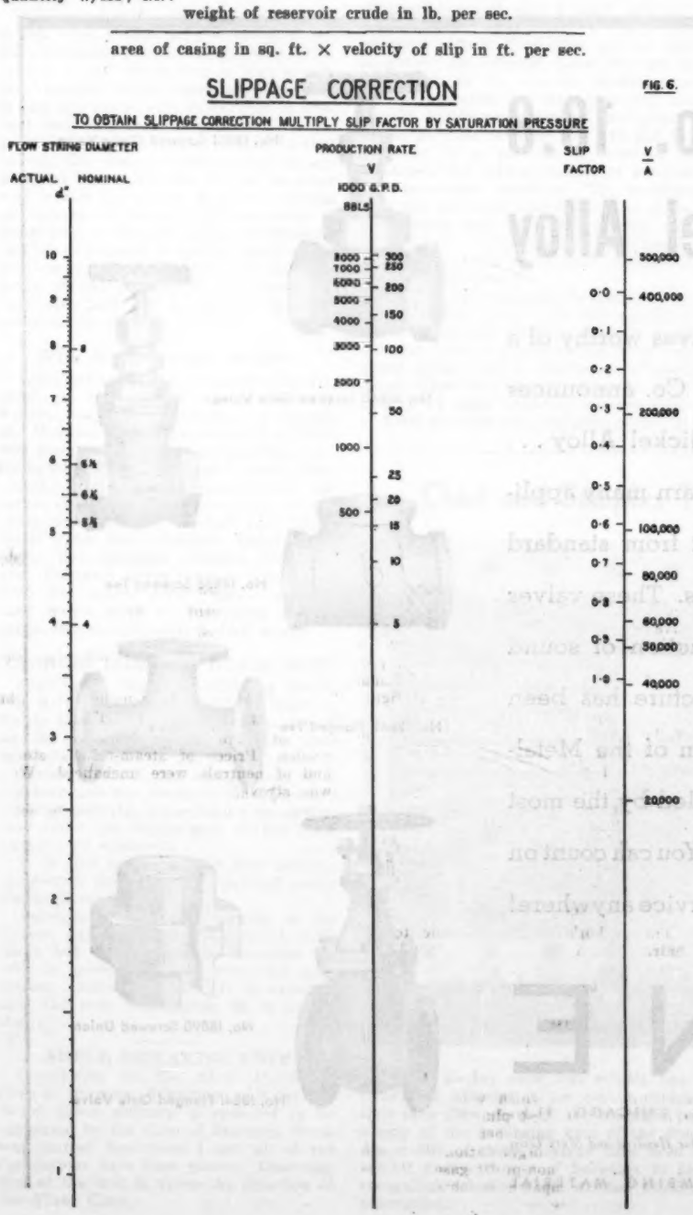
(Continued from Page 18)

fines as the foam and the mist conditions. Our results are in general agreement with this conception so far as the so-called foam condition is concerned. Putting b = approximately 0.5 in the above formula, the agreement shown in curves 1, 2, 4 and 8 is obtained. The mist condition does not, however, follow immediately the 1:1 gas-oil ratio is reached. On the contrary, a stable foam appears to be formed (as shown by the sharp break in each of these curves) in which the slippage loss is negligible and which persists up to gas-oil ratios of at least 5:1 and probably 10:1. At still higher expansion ratios surging sets in, due to the movement of alternate plugs of gas and foam up the casing (curves 5 and 6) but we have not succeeded under the conditions obtaining in Persia in determining the point at which true mist flow commences. The oil films in the stable foam are obviously approximately flat and not spherical, as is assumed as the basis of Versluys' argument.

Even in fields in which mist flow is important, our method of correcting for the energy loss due to slippage in the lower part of the well should still prove of value. From the above formula it is evident that the slippage is completely determined by the p-v curve and the quantity w/Ab; i.e.:

$$\frac{\text{weight of reservoir crude in lb. per sec.}}{\text{area of casing in sq. ft.} \times \text{velocity of slip in ft. per sec.}}$$





It appears that if w/Ab is greater than 100, the total energy loss due to slippage in the foam condition amounts to not more than a few foot-pounds per pound of oil, and this, therefore, provides a convenient limit in the design of suitable flow strings. Thus, for example, a 4-inch string has a cross-sectional area of 0.087 square foot; taking b = 0.5 for M.-i-S. oil, we have for the limiting case

$$\frac{w}{0.087 \times 0.5} = 100 \text{ or } w = 4.35 \text{ lbs. per sec.}$$

= approximately 1,250 bbls. per day.

At any rate greater than 1,250 bbls. per day through a 4-inch flow string, therefore, slippage can be entirely neglected, with our particular oil. A further simplification arises from the fact that foam slippage ceases abruptly at a point in the well that usually is some distance from the surface. In order to calculate the pressure drop over the whole well therefore we only require to know the total slippage loss, which is a function only of the saturation pressure and w/A (b being assumed constant). A nomogram (Figure 6) shows this relationship; the slippage correction read from the diagram is simply added to the depth of the well and Figure 4 is then used to calculate the pressure drop. (See example 2.) It should again be mentioned that we have no information whatever on the subject of mist slippage, which so far has not entered into any of our practical calculations; and some doubt may also be expressed as to the validity of extrapolating our results to cover very small flow strings.

Friction

According to the ordinary theory of fluid flow the energy loss due to friction is proportional to the velocity and to the viscosity of the fluid at low values of the Reynold's criterion $\frac{uD\rho}{n}$ and to the square of the velocity and independent of the viscosity at high values. It is by no means easy to ascribe a rational value to the viscosity of a heterogeneous mixture of gas and oil, and in the only detailed experimental work previously published on the subject a purely empirical eq. n is used for the calculation of friction loss[11, 12].

$$\Delta P_{fr} = 0.00125 \frac{u \rho Z^{0.18}}{d}$$

where ΔP_{fr} is the friction loss, u the velocity, ρ the density and Z the viscosity of the oil phase. There seems to be no theoretical justification for such a formula and we in fact find that at high rates of flow the ordinary formula holds:

$$d W_s \frac{4 k v^2 w^2}{g D A^2} dx$$

where k is a constant independent of the velocity. (It should be observed that the value of k depends upon the relative roughness of the pipe and is slightly different for different diameters.)

If the two formulas given above are compared they will be found to give approximately the same numerical result at a velocity of 1 foot per second. It is necessary to go to a velocity of some 4 feet per second before the friction loss on our formula amounts to as much as 1 per cent of the total energy; therefore we feel that, although derived from experiments at high velocities, the formula can be used for all practical purposes over the whole range. Curves 7 and 10, Figure 5, were calculated on this basis with added correction for velocity head; in curves 5 and 6 the apparent spread is due to surging.

For the purposes of calculation, it will be evident that the calculated flowing pressure of a well will be greater if we neglect friction than if friction is included. It would be possible to plot the difference between these two pressures for various conditions of flow in the form of a nomogram. This would, however, be somewhat complicated and a simpler form is shown on Figure 7. Advantage is taken of the fact that below about 120 pounds per square inch the p-v curves are very nearly true hyperbolas and are represented by the formula $v = \frac{0.0141\, p_s}{p - 5}$ for M.-i-S. oil.

Over this range it is therefore possible to integrate the general eq. n of flow to give

$$X = 72 \times 0.0141\, p_s \times 2.3 \left[\log_{10} \left((p-5)^2 + \frac{0.0141^2\, p_s^2\, 4\, k w^2}{g D A^2} \right) \right]_{p_2}^{p_1} - \frac{2.3 D}{8 k} \left[\log_{10} \left(v^2 + \frac{g D A^2}{4 k w^2} \right) \right]_{v_2}^{v_1}$$

[11] Moore and Schilthuis; Trans. A.I.M.E. (1933) 103, 170.
[12] Reistle and Hayes; U. S. Bur. Mines Rept. of Investigations 3,211 (1933).

where X is the depth of the well and the last term is the velocity head correction discussed below.

A nomogram is therefore constructed to cover the friction correction at high pressures and the formula is used at low pressures. An example of the method of calculation is given below (Example 2).

Velocity Head

At very high rates of flow it is necessary to apply a correction for velocity head which follows normal theory. We have

$$\int d w_2 = \frac{u^2}{2g} = \frac{v^2 w^2}{2 g A^2}$$

whence

$$d w_2 = \frac{v w^2}{g A^2} dv$$

(The application to the calculation of the maximum throughput of a bean on the lines of the ordinary steam-jet theory has been discussed in a previous paper but is too long to be included here.)

It is only rarely necessary to apply this correction, since it is barely measureable even with a velocity at the flow head of 20 feet per second. At such rates slippage is absolutely negligible and the eq. n of flow becomes

$$d E = 144\, v dp = dx + \frac{v w^2 d v}{g A^2} + \frac{4k v^2 w^2 d x}{g D A^2}$$

$$\text{or } \int d x = \int \frac{144\, v dp}{1 + \frac{4 k v^2 w^2}{g D A^2}} - \int \frac{v w^2 d v}{g A^2 \left(1 + \frac{4 k v^2 w^2}{g D A^2}\right)}$$

The last term on the right-hand side is the velocity head correction and on integration yields:

$$-\frac{2.3 D}{8 k}\left[\log_{10}\left(v^2 + \frac{g D A^2}{4 k w^2}\right)\right]_{v_1}^{v_2}$$

See Example 2.

Practical Applications

A few examples illustrating the use of the methods and nomograms described are appended. They represent actual experimental data obtained on the field.

Example 1—Well A. Depth, 3,088 feet; casing, 10-inch; production rate, 2,380 bbls. per day; flowing pressure, 49.5 pounds per square inch absolute; sat. n pressure, 524 pounds per square inch absolute. To calculate the bottom hole pressure.

The production rate is so low that there is no appreciable friction. On the slippage-correction nomogram (Figure 6) take a line through 10-inch on the left-hand scale and 2,380 bbls. per day on the middle scale. On the right-hand scale read a slip factor of 0.42. Multiply by the saturation pressure to give the slippage correction $0.42 \times 524 = 220$. Total energy required in well is therefore $3,088 + 220 = 3,308$ feet-pound per pound. Turn to the nomogram, Figure 4. Take the point where the curve $p = 49.5$ cuts the circle $p_s = 524$ and join to the center; extend the line and read 3,950 on the outer circle. This corresponds with the flow head; ∴ join the center to the point $3,950 - 3,308 = 642$. On the circle $p_s - 524$ read the pressure $p = 680$ pounds per square inch absolute. (Actually measured pressure = 684 pounds.)

Example 2—Well B. Depth, 2,100 feet; casing, 4-inch; production rate, 9,000 bbls. per day; flowing pressure, 41.5 pounds per square inch absolute; Sat. n pressure, 465 pounds per square inch absolute. To calculate the bottom hole pressure.

This example is rather more complicated. There is no slippage but considerable friction and velocity head (it represents in fact curve X, Figure 5). To begin with the nomogram, Figure 7 gives the friction correction down to a pressure of $0.161\, p_s + 12$: in this case $0.161 \times 465 + 12 = 87$ pounds per square inch absolute. Between this pressure and the flowing pressure of 41.5 pounds we use the formula:

$$X = 72 \times 0.141\, p_s \times 2.3\left[\log_{10}\left((p - 5)^2 + \frac{0.0141^2 p_s^2 4 k w^2}{g D A^2}\right)\right]_{p_2}^{p_1}$$

$$-\frac{2.3 D}{8 k}\left[\log_{10}\left(v^2 + \frac{g D A_2}{4 k w^2}\right)\right]_{v_1}^{v_2}$$

The value of $\frac{4kw^2}{gDA^2}$ read from the nomogram is 132 and k for 4-inch pipe is 0.0025. The formula therefore reduces to:

$$X = 72 \times 0.0141 \times 465 \times 2.3 \log_{10}\left(\frac{(87-5)^2 + 0.0141^2 \times 465^2 \times 132}{(41.5-5)^2 + 0.0141^2 \times 465^2 \times 132}\right) - \frac{2.3 \times 0.33}{8 \times 0.0025} \log_{10}\left(\frac{0.186^2 + 1/132}{0.08^2 + 1/132}\right)$$

The value of v corresponding to the flowing pressure ($v = 0.186$) is read from Figure 2.

The arithmetical solution of this equation is $X = 250$; i.e., the pressure is 87 pounds, 250 feet below the 41.5-pound pressure point (this can be checked on the curve X, Figure 5). Between this pressure and saturation pressure, if there were no friction, the corresponding depth in the well would be 1,800 feet from the curve of Figure 3.

From Figure 7 the friction correction is 0.68 (scale reading corresponding to $\frac{4kw}{A^2gD} = 132$) 0.68×465 (saturation pressure) = 316 feet. Between 87 pounds and 465 pounds per square inch absolute, the corresponding depth in the well is, therefore, $1,800 - 316 = 1,484$ feet.

Above saturation pressure there remains therefore $2,100 - 1,484 - 250 = 366$ feet.

Again, from the last column of Figure 7, the lift per pound pressure drop at this particular rate of flow is 2.79 feet per pound. Therefore 366 feet corresponds to 131 pounds per square inch and the bottom hole pressure is $465 + 131 = 596$ pounds per square inch absolute (actual observed pressure, 600 pounds per square inch).

Example 3—Well C. Depth, 2,118 feet; casing, 10 inch.; production rate, 12,000 bbls. per day; flowing pressure, 90 pounds per square inch; bottom hole pressure, 546 pounds per square inch. To calculate the saturation pressure.

The nomograms, Figures 6 and 7, show that both friction and slippage are negligible. On Figure 4 take a vertical line passing through $p = 546$ (the variation with saturation pressure in this region is small). Read off 1,020 feet in the outer circle. Add the depth of the well and obtain 3,138. Take a line from the center to 3,138 and where it cuts the $p = 90$ pounds line read off the saturation pressure 495 pounds per square inch absolute.

Many variations of these methods are possible and suggest themselves in the course of ordinary field work. They have been applied in Masjid-i-Sulaiman to the calculation of pressure drops over a very wide range of conditions, and, provided that flow is steady, the maximum divergence from the experimental figure has been equivalent to about 2.5 per cent of the total energy used in the well; in the great majority of cases the error is less than 1 per cent.

Considerations of space have made it impossible to do more than give a very brief outline of the subject in the present paper, but it is hoped that it will serve the purpose of stimulating discussion on an extremely important topic.

Acknowledgment

The author's thanks are due to the chairman and directors of the Anglo-Persian Oil Co. for permission to publish the results of this investigation.

STATE STATION CHAIN PLANNED

SACRAMENTO, Calif., Oct. 15.—A movement to establish, through an initiative measure, a chain of state-owned gasoline stations which would sell fuel to consumers at cost plus a profit of 5 per cent, was revealed here.

Backed by an organization described as the "people's non-profit gasoline committee," the campaign to obtain signatures to initiative petitions and force the question before the voters of the state was headed by two men, George W. Taylor of Los Angeles, and Walter Johnson of San Francisco.

They announced that petitions would be circulated in Los Angeles, San Francisco, Oakland and San Diego.

E. H. Eddleman to Resign and Join Equipment Firm

WASHINGTON, D. C., Oct. 16.—It is reported that E. H. Eddleman, secretary to the production committee and the transportation committee of the Planning and Coordination Committee will resign around November 1. He is expected to accept a position, probably as vice president, with the International Derrick & Equipment Co. If this offer is accepted he will be located in Dallas, Tex.

J. W. Steele, now in the production division of the Petroleum Administrative Board, formerly with the Bureau of Mines, will be Mr. Eddleman's likely successor.

Difficult to Find Water in the West Texas Fields

(Continued from Page 27)

and when it reaches the bottom, the well must necessarily be clean. It all sounds quite simple on paper, but the boys find it a difficult and troublesome job to move heavy equipment about over the 40-foot sand hills and valleys.

"After examining what seemed to be the most inaccessible wells, we plodded back down the line to the car and started for home. Again, I thought my troubles were dissolved in the past, but no such good fortune. We became stuck in the main road, though not so badly bogged as at first, and we managed to get across the bad place with flying colors and sand. However, it seemed that Mr. Paris had had insufficient exercise at the wells, so we stopped and hiked about a mile across some choice sand to a homesteader's old abandoned shack. This place was photographed and left undisturbed in its 10-foot hole which the eddying desert winds had made about it, and we tripped back to the car. When we got to our seats the greater part of me was trailing in the sand, but I settled down with a feeling of satisfaction and hummed, 'Little man, you've had a busy day'."

Few Signs of Clarified Gasoline Market Visible

(Continued from Page 22)

of a quarter-cent in North Texas quotations resulted in increased business for that district without disturbing the market elsewhere.

A recession in the demand for bright stocks was followed last Friday by a drop of 1 cent in the quotations for all grades. Prices of steam-refined stocks and of neutrals were unchanged. Wax was strong.

Kerosene was moderately steady, with no price changes.

Slowing up of the demand for burning oils was reflected by reduced prices throughout the list. There was brisk buying of these oils in September while consumers were filling their tanks. With storage filled, the weather became the important factor, and continued mild weather has exerted a depressing influence on this section of the market. Arrival of colder days is expected to witness a rise in the demand for burning oils.

RETAIL PRICE CHANGES

(Continued from Page 26)

ductions approximating 2 cents starting October 11. The market has not settled to a definite level and because of its instability the accompanying table does not show these changes as of October 16.

Late Fields

OKLAHOMA

Texas Co.'s No. 2 Denny, C SE NE SE Section 33-17-4w, Crescent Pool, Logan County tested 4,509 bbls. in 48 hours.

Eason Oil Co.'s No. 2 Katscher, C NW NE SW Section 34-17-4w, had Wilcox sand at 6,291-6,319 feet. It was drilling with 3,500 feet of water in the hole, and in its one flow made 10 bbls. of oil. It was being rigged up for a swabbing test.

Jadeka Development Co. and others' wildcat test, No. 1 Frakes, C SW NE SW Section 16-15-6w, Kingfisher County, had well trouble at a total depth of 7,612 feet and was preparing to shoot pipe loose and abandon the hole.

Slick-Urschel, Inc.'s No. 1 Reed, SE NE SE Section 31-7-8, Seminole County, was deepened 9 feet to 4,199 feet and flowed 1,111 bbls. in 7 hours and 40 minutes. It had penetrated 14 feet of Wilcox sand.

Crosbie and others' No. 3 Hardin, C NE SW NE Section 30-2-7, Pontotoc County, flowed 2,171 bbls. in a production test of seven hours and five minutes, a portion of the time through casing, but most of the period through tubing, pinched in.

Enforcement or Crude Cut Show Down in Washington

(Continued from Page 8)

jects covered by the code have been requested to report to the Planning and Coordination Committee by that time.

Effective Enforcement to Avert Price Revision

Much was said during the week about cutting the price of crude oil. Very serious consideration was given this subject by the committee, and it was also taken up at the conference with Administrator Ickes. The administrator looks with pride on the fact that for one year under the code the posted price of crude has remained steady at $1. At the conference, however, it was pointed out to him that this price had been maintained with expectations of stabilizing crude production which had not materialized.

A desperate attempt is being made by Administrator Ickes to forestall a cut at this time. It is understood the situation will immediately engage Mr. Horween's attention.

It is generally thought here there will be no price cut at this time. Almost everyone, thoroughly convinced that the enforcement drive now under way means business, is content to wait a little longer for the promised results, and then take up the question of a cut if conditions are not remedied. However, the past week has shown there there will not be much more waiting. The industry is tired of promises and wants action. The present state of mind of the industry, shown here during the week, will demand either that "hot" oil be stopped, or competition on the same basis with the "hot" oil element will follow.

With last week out of the way, however, and the wholehearted promises of the different enforcement agencies to cooperate a better feeling is manifest. Differences of opinion between the petroleum administration and the industry have been cleared up and compromised so that the way is clear for a long step forward. The recommendations of the committee to the administrator were accepted, their fulfillment was promised, and today, the industry may look forward to better feeling between Administrator Ickes and its representative, the Planning and Coordination Committee.

For once the industry's plans are being given an opportunity to work. It will be necessary for the complete success of those plans that the industry co-operate to the fullest extent with the government agencies.

East Texas Waiting for Federal Action on Interstate Traffic in "Hot" Oil

By L. E. BREDBERG

FORT WORTH, Tex., Oct. 15.—Production reports from the East Texas Field carry variations from 110,000 to 130,000 bbls. per day, market demand for oil and refined products being the only basis for calculation.

Federal forces are waiting for Washington to pass on the proposed Federal "tender committee" suggested by the Texas Petroleum Council's executive committee. Under the plan, the Federal committee would have the same function in regulating interstate shipments as the Railroad Commission's tender committee, on shipments within Texas. This would require a permit from the Federal tender board for interstate shipment, and all transporting companies would be required to refuse shipments without the permit. Common carriers are expected to be particularly impressed by such an order.

If such a plan is put into effect, and the tender order of the State is voted on again at the special session of the legislature making it effective before December 25, or the Railroad Commission wins its appeal in regard to checking intrastate shipments of refined products, there will be a two-fold check on shipments.

Capt. E. N. Stanley, in charge of the commission's field forces, had men obtaining samples of oil from open pits at 35 refineries in the field this week. These samples are to be exhibits in the commission's injunction suit against 25 refiners at Austin on October 29. If the commission wins the refineries will not be able to skim off a small percentage of gasoline and run the residue to these open pits.

The state comptroller's report for the year ending August 31, 1934, show gross production taxes paid on 364,721,615 bbls. of oil, or nearly 10,000,000 bbls. above the Railroad Commission's allowable. This controverts statements that overproduction has been much less than estimated.

Refineries in the field ran a daily average of 116,865 bbls. during the week. Pipe line movements fell to 392,650 bbls. Tank car shipments of crude also fell off, averaging only 948 per day.

Shipments of refined products were as follows:

Product—	No. of cars	Gallons
Gasoline	1,154	9,566,800
Kerosene	97	790,930
Fuel oil	777	7,300,985
Residuum	108	921,780
Distillate	354	2,902,350
Topped crude	408	3,587,925
Gas oil	165	1,349,850
Casinghead gasoline	136	1,104,905
Crude tops	17	147,220

Interstate shipments totaled 1,420 cars and intrastate shipments 1,796 cars. There were 2,796 cars shipped without tenders.

Roco Refining Co. was assessed fines totaling $6,600 and Keystone Refining Co., operated by S. B. Pope, was fined $6,500 by District Judge C. G. Dibrell of Galveston, sitting at Longview.

A third case had previously resulted in a similar fine.

Both defendants were charged and convicted of failure to make proper reports to the Texas Railroad Commission and for receiving untendered oil. Roco was convicted of failing to make proper reports for 72 days and Judge Dibrell assessed a fine of $50 for each day. F. W. Fischer of Tyler, counsel for the Roco refinery, filed notice of appeal.

Gasoline Allowable in November Is Announced

WASHINGTON, D. C., Oct. 15.—Administrator Ickes announced the November gasoline production allowable as 33,180,000 bbls., compared with 33,690,000 in October, a slight decrease for the month, but an actual increase of 19,000 bbls. daily because November has but 30 days. No withdrawals from gasoline stocks are required during November.

The allowed production by refinery districts follows:

	District	Amount (42-gal. bbls.)
1.	East Coast	5,594,000
2.	Appalachian	1,420,000
3.	Indiana-Illinois-Kentucky	5,296,000
4.	Oklahoma-Kansas-Missouri	4,321,000
5.	Texas:	
	(a) Inland Texas	2,875,000
	(b) Texas Gulf Coast	6,457,000
6.	Louisiana-Arkansas:	
	(a) La. Gulf Coast incl. Ala.	932,000
	(b) North La.-Ark. incl. Miss.	759,000
7.	Rocky Mountain	647,000
8.	California	4,798,000
	Total	33,180,000

Upton Sinclair's Plan Affecting Oil Industry

LOS ANGELES, Calif., Oct. 15.—It is reported here that in the event Upton Sinclair is elected governor of California next month the following measures affecting the petroleum industry in California will either be submitted to the legislature, if that body is favorable to Sinclair's policies, or will be presented to the voters of California in the form of referendums:

1. Severance tax on production to pay for old age pensions, in addition to other taxes now paid.

2. Acquisition of all pipe lines to be owned and operated by state.

3. State owned gasoline service stations, with possible state refineries and sources of crude to supply these stations.

4. Additional gas tax for old age pensions in case the proposed crude oil severance tax is not adopted.

STABILIZING GASOLINE PRICE

DALLAS, Tex., Oct. 16.—In a stabilization effort which took in Dallas, Fort Worth, Waco, and Terrell, the worst price-cutting areas in this section, gasoline prices were advanced Monday to 14 cents for competitive or East Texas, 16 cents for middle and 18 cents for premium grade.

Texas Nominations to Be Made on Gravity Basis

AUSTIN, Tex., Oct. 15.—Railroad Commissioner Ernest O. Thompson announced that nominations by purchasers will be asked for the statewide oil hearing October 29, in an effort to determine market demand. Nominations will be sought on a new basis, Mr. Thompson said—the gravity of the oil which purchasers desire.

This would enable the commission to distribute the state allowable among fields on the basis of the gravity of oil produced, and interchange oil between fields where practical.

The commissioner said he understood that the nomination for purchase of 40,000,000 bbls. of East Texas crude, made at the last statewide hearing on behalf of an unnamed exporter, was "firming up." He was advised that guarantee money for the oil would be posted within the next few days. It was understood that a guarantee of $850,000 would be posted in some Texas bank as evidence of good faith.

First Oil Through Iraq Line Pumped to Haifa

Oil from the Iraq Field flowed into the port of Haifa, Palestine, for the first time, October 15. The oil was brought through the 1,200-mile pipe line from Kirkuk. It will be stored at Haifa in reservoirs constructed on Acre Bay between Haifa and the town of Acre, until the end of the month when shipments abroad will commence.

The pipe line was built by the Iraq Petroleum Co., Ltd., in which British, Dutch, American and French interests are represented. The first oil sent through the Tripoli branch of the line in Syria reached France late in August. Syria is under French mandate; Palestine under British.

TO DISCONTINUE CONNECTIONS

AUSTIN, Tex., Oct. 15.—Discontinuance of pipe line connections of owners or operators of oil leases who are delinquent in monthly production reports was ordered by the Texas Railroad Commission. District supervisors were ordered to notify pipe lines serving tardy producers to sever connections and not to reinstate them until instructed to do so by the commission.

The penalty was invoked by the commission in a campaign to obtain complete and accurate reports of crude production. The reports were due September 15 for August production.

LONG LAKE GAS LINE

FORT WORTH, Tex., Oct. 15.—Construction of the 70-mile gas pipe line from near Riesel, McLennan County, to the Long Lake fields in Anderson County, has been started, as part of the Lone Star Gas Co.'s $2,000,000 construction program.

The welded 12-inch line will run through McLennan, Falls, Limestone and Freestone Counties, tying into the present system south of Waco and near Groesbeck. It will strengthen the company's service to Central Texas towns, including Waco, Mart, Bremond, Temple, College Station, Belton and Round.

The A. F. Day Construction Co. of Dallas has been awarded the contract, and will employ labor as needed in the towns nearest the line, Secretary John E. Morriss of the construction company, said.

Kellarville Field, Wheeler County, Panhandle District, Texas

Recent Developments in the Manufacture of Sucker Rods

By BLAINE B. WESTCOTT and L. W. VOLLMER
Gulf Research & Development Corp., Pittsburgh, Pa.*

The Diamond Jubilee of Oil commemorating the seventy-fifth anniversary of the drilling of the Drake well and the beginning of the oil industry has caused many to hesitate momentarily in order to review the progress that has resulted in the development of the world's third greatest industry. In keeping with this

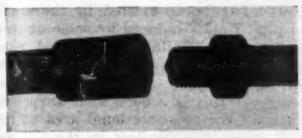


Fig. 1—Box and pin joint on wood sucker rods used to pump the first oil wells

remarkable growth, the methods and equipment used today for the drilling and production of crude oil are, on the whole, widely different from those used 75 years ago. It is somewhat in the nature of a shock, therefore, to realize that nearly all of the oil now produced by artificial lifting methods is still raised to the surface by means of reciprocating pumps actuated by sucker rods. It may perhaps be of interest to some to briefly consider the evolution of the fully heat-treated alloy steel sucker rod, capable of pumping oil from depths in excess of 7,000 feet, from the wooden sucker rods used in the Drake well which was only 69 feet deep. To accomplish this it was necessary to improve both the design and materials used. Here again it is surprising that these improvements have been, for the most part, more in the nature of perfection in details rather than the adoption of new principles.

From Wood to Steel

The wood sucker rods of 75 years ago were the same as those used in water wells of that period. They consisted of wood poles having forged iron joints of the box and pin type which were split in the shape of a wishbone at the end opposite the joint and riveted around the wood. From Figure 1 it is evident that the joints did not differ materially from the present standard of the American Petroleum Institute. The wood sucker rods continued in use almost unchanged for about 30 years after the completion of the Drake well; meanwhile, wells had been drilled to depths of more than 3,000 feet. The strength of wood rods was inadequate to pump from such depths and the first metal sucker rod made its appearance in 1892. One of these early metal rods is shown at the left in Figure 2. It was made largely of wrought iron and consisted of a tubular body section which was expanded into a malleable iron box at each end. A malleable iron double pin connector was used to join the rods together. It was only a short time until the tubular body section was replaced by a solid rod of either wrought iron or steel, but malleable iron joint sections were still retained. The malleable iron sections were cored in the center and the solid rod of the body was upset against the shoulders of the malleable iron sections to hold the latter in place.

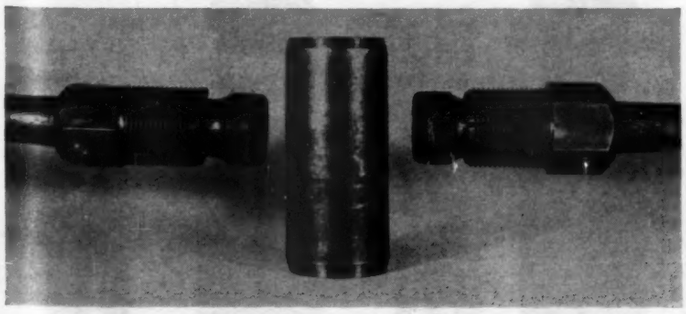


Fig. 3—The Bull Dog sucker rod joint

It can be seen from Figure 2 (second rod from the left) that this resulted in a pin, the first few threads of which were cut in the metal of the body and the remaining threads in the malleable iron. The threaded portion of the boxes was composed wholly of malleable iron. The use of a solid metal body section allowed a pin to be embodied in the sucker rod and made possible the box and pin and double pin types in use today.

While these solid metal rods were more serviceable than their tubular predecessors, the increasing severity of operating conditions finally disclosed the inherent weakness of the composite metal pins. It was an easy step to eliminate bi-metal pins by shortening the malleable iron section until it comprised only the wrench square. Meanwhile, steel had replaced wrought iron for many purposes because of its greater strength and consequently the body and pins of these rods were entirely of steel, only the wrench squares being of malleable iron. This design was a great improvement over all previous efforts as is attested by the fact that they are still in use in many of the older and shallower fields. This type of rod is pictured the third from the left in Figure 2.

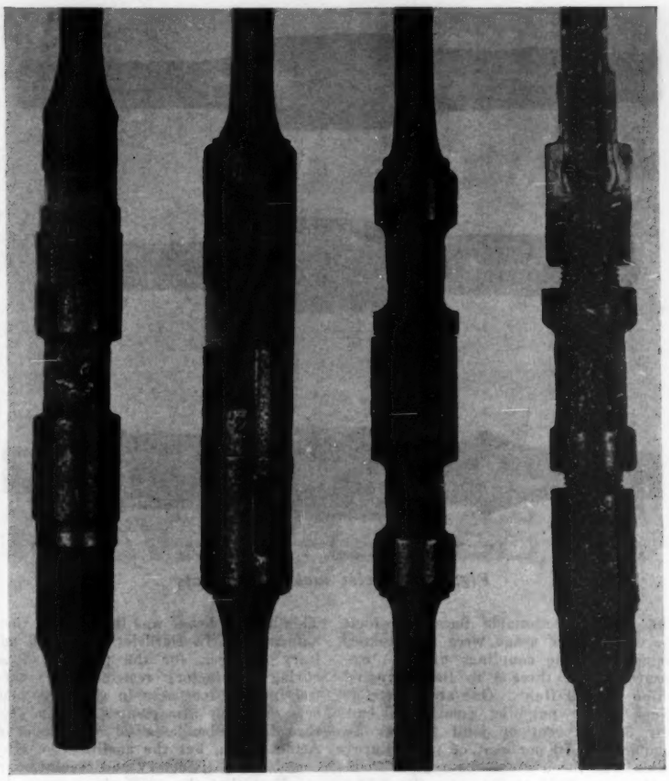


Fig. 2—Early types of metal sucker rods

The all-steel upset sucker rod of today made its first appearance about 1908. It was fabricated from plain carbon steel and no treatment was used to relieve the strains induced in upsetting. Like all previous metal rods, the weakest section in service proved to be the pins. Some attempts to reduce pin failures were made by the substitution of Whitworth threads for the sharp V-notch threads, but only very minor improvement resulted. About 1923 the first serious attempts were made to relieve forging strains by heat treatment of the upset end sections. Both quenching and normalizing treatments were used with the result that pin failures were appreciably reduced. Until the adoption of standard dimensions by the American Petroleum Institute in 1926 the dimensions of the joints indicated the opinion of the individual manufacturer and the product of one manufacturer was not interchangeable with that of any other. The standardization of dimensions insuring interchangeability has been of the greatest value to the industry and the adherence to the close dimensional tolerances required by the sucker rod specifications has been, together with greater care in field handling, responsible for the large decrease in the proportion of pin failures which has been noticeable during the last five years.

The Bulldog Joint

Sucker rod joints have, for many years, offered an attractive field for experimentation because of the early prevalence of pin failures and the well-recognized fact that threaded connections are always subject to stress concentration. Numerous designs have been proposed and patented, but relatively few ever reached the stage of actual service tests. Many attempts were directed either to the elimination of threads entirely or to a design in which the threads were not subjected to the working loads. Unfortunately, practically all of these introduced a higher concentration of stress than is present in the standardized type of sucker rod joint. Some were entirely impractical either to manufacture or to use. Only one radical departure from the conventional design ever attained any importance in actual field service; this was the Bulldog sucker rod joint pictured in Figure 3. In this joint the upset ends were held tight against a cross head in the center of the coupling by means of two slotted and threaded sleeves which screwed into it from either end. There were no threads on the rod proper and it was claimed for this joint that the slotted sleeve nuts served as locking devices to prevent unscrewing.

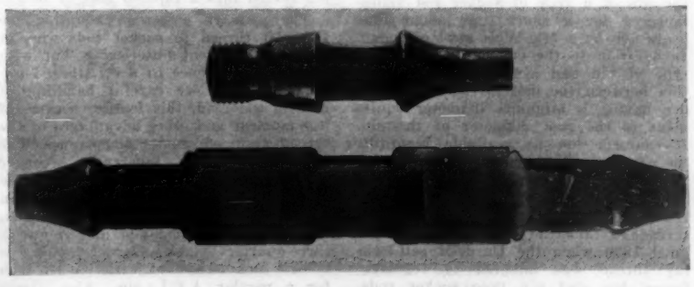


Fig. 4—Conical shoulder sucker rod joints

*Before fall meeting A.I.M.E. Petroleum Division, Tulsa, October, 1934.
Authors' title: "Development in the Manufacture of Sucker Rods."

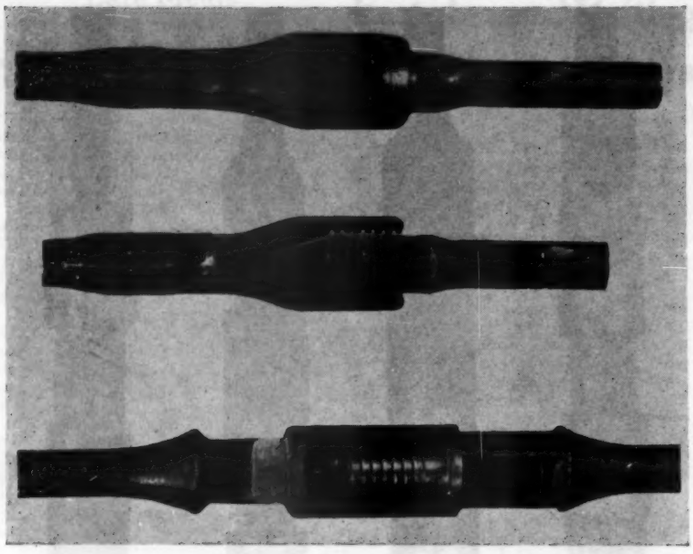


Fig. 5—Dardelet sucker rod joints

The most objectionable features which prevented wider usage were the greater diameter of the couplings and the exposure of the threads to the corrosive action of well fluids. One string, tested under severe pumping conditions, had only 30 per cent of joint failures as compared to 70 per cent of pin failures which was the average for regular rods in the same field at the same time. The life of the string, however, was greatly shortened by corrosion of the threads.

Conical Shoulder Joints

A greater number of joints which were modifications of the usual screw type rather than complete departures therefrom, advanced to the point of operating tests during the past seven years. Among the first of these were joints in which a conical shoulder displaced the flat shoulder required by the sucker rod specifications. In some cases the threaded portions of the pins were somewhat larger, but the thread dimensions were not altered. A cut-away section of one of these conical shouldered joints is shown at the left in Figure 4. The purpose of the conical shoulder was to provide resistance against bending so as to support the threaded joint. Several strings of these rods gave satisfactory service under difficult operating conditions, but they did not meet with general favor, principally because they were not interchangeable with the regular A.P.I. type.

On the right in Figure 4 is pictured the pin of a type of sucker rod manufactured for a short time about four years ago by a Mid-West steel company. In addition to the conical shoulder this type of pin had a roughly curved section between the last thread and shoulder having a minmum diameter equivalent to the root diameter of the pin. No information is available regarding the performance of these rods.

The Dardelet Thread

No attempts at modification of the threads of standard type joints were made until 1930 when the Dardelet self-locking thread was adapted to regularly forged box and pin type sucker rods. This unique device was invented by Commandant H. L. Dardelet, a French military engineer, for the purpose of securing satisfactory resistance to vibration-induced looseness in threaded members on heavy armaments. The Dardelet thread may be described as a modified Acme design, but the modification is so completely satisfactory and revolutionary in effect that the comparison ceases beyond a superficial similarity. A regularly forged joint with the Dardelet thread is illustrated at the bottom of Figure 5. In contrast with the Acme thread, separate profiles are used for the external or pin thread and internal or box thread. The root of the pin thread, instead of being parallel to the axis of the joint, is inclined downward toward the axis at an angle of 6 degrees, while the crest of the box thread is also tapered in a similar manner; the root of box thread and crest of the pin are both parallel to the axis of the joint. In the unlocked position the two threads engage each other in the manner of a regular Acme thread, but, as the joint shoulders and forward motion is arrested, continued rotation causes the two inclined or so-called binding surfaces to engage and slide over each other. An ever-increasing compressive force is exerted on these surfaces until finally the abutment side of the box thread contacts the abutment side of the pin thread. At this point the load is held by an Acme type of thread locked, in effect, by a tapered pin forced into a tapered hole or box.

The primary object in adapting the Dardelet thread to sucker rods was, of course, to prevent unscrewing, but with improved adherence to A.P.I. thread tolerances and more careful handling of rods in the field, this feature became of less moment and other advantages of the thread assumed greater importance. The Dardelet joint is inherently stronger than the A.P.I. design, primarily because of a greater root diameter of the pin and a smaller major diameter of the box. As an example, the minor diameter of a three-quarters inch Dardelet pin is 0.9625 inch compared with 0.9393 inch for a regular A.P.I. pin. Also, stress concentration at the base of the thread is lessened by the relatively large angles of the Dardelet thread in comparison with the sharp V-notch of a standard thread, and by the fact that the load is shared by both the tapered locking surfaces and abutting sides. Stresses are more evenly distributed throughout the entire length of the thread and rocking of the pin in the box is precluded by the continuous support afforded by the locking faces.

Up to the present time, only a few Dardelet rods have been tested in the field and no record of their performance is available. This seeming lack of consideration is, no doubt, attributable largely to the depression period and the consequent general curtailment of production and field experiments.

A growing realization that stress concentration was responsible for the major portion of joint failures, and perhaps body failures in the vicinity of the joint, led to the development of the Dardelet streamline joint, a radical departure showing the influence of present-day engineering trends. The joint and a section are pictured at the top and middle of Figure 5. The intent was to make the change in section from the rod body to the joint as gradual as possible for the purpose of securing a lower resistance to bending moments and a more uniform stress distribution.

Made possible by the locking principle of the Dardelet thread, the usual shoulder was entirely eliminated, and in its place was substituted a pointed tip on the pin which bottomed in a recess at the base of the box; the seating of the pin tip served to lock the thread. Although the cross-sectional area of the joint was the same as that of a standard Dardelet joint, considerable metal was eliminated by reducing the wrench square to three-quarters inch and "streamlining" wherever possible.

The results of field tests on this joint were impressive; eight strings in five different fields gave a combined service of 2,416 days with 19 joint failures and 41 total failures; previous strings of A.P.I. rods operated 2,348 days with 152 joint failures and 182 total failures.

Of the 19 joint failures in the streamlined rods, 11 were in the boxes resulting from wear on the tubing. The joint is particularly susceptible to such failures because the initial tensile load due to make-up is greatest at the region of the last engaged thread of the box rather than in the last thread of the pin as in the case of the A.P.I. joint.

Despite its admirable record, the joint has not yet enjoyed widespread usage due in part to its unusual construction, but largely to the aforementioned depression. It may be considered a significant step in sucker rod development, however, since it demonstrates rather conclusively that strong joints do not necessarily need to be of heavy construction.

The Undercut Joint

Although adherence to A.P.I. specifications along with improved field practices resulted in decreased joint failures, the frequency with which pins continued to break served to indicate that an inherent weakness existed in the standard pin. Unless induced by some unusual condition, pin failures originated characteristically in the region of the first vanishing thread. Although of common occurrence this is a somewhat surprising fact since the cross-sectional area at this point is not the smallest in the pin and the root angles of the vanishing thread

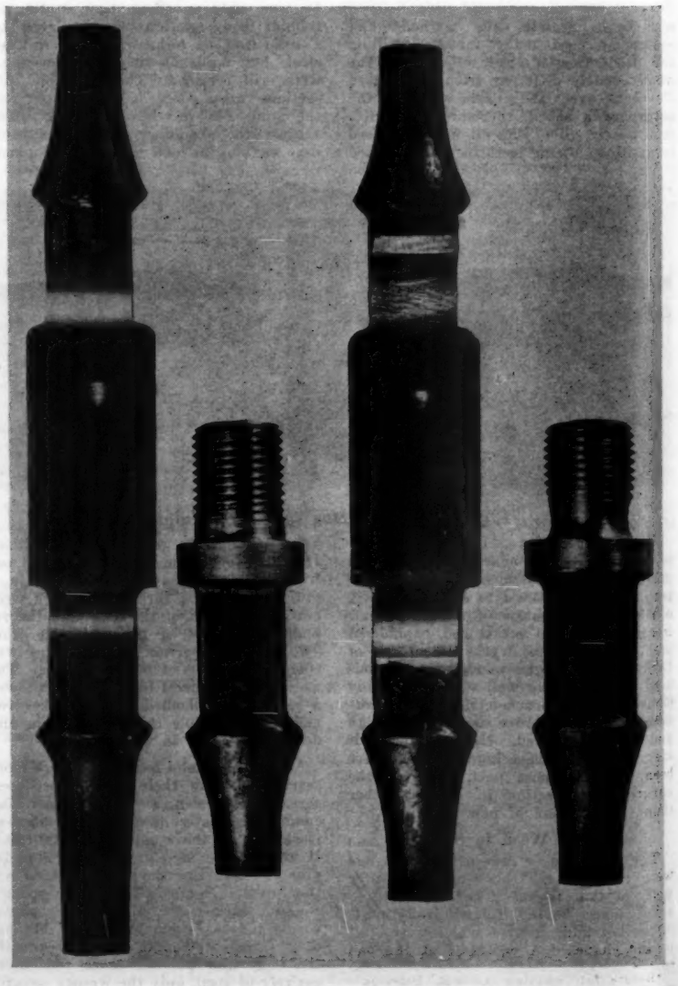


Fig. 6—The undercut sucker rod joint (right) compared to the standard A.P.I. sucker rod joint

TABLE 1—CHEMICAL COMPOSITION OF SUCKER ROD STEELS*

No.	Type—	Per cent of principal constituents— Carbon	Manganese	Chromium	Nickel	Molybdenum
1	Carbon, S.A.E. 1,035	0.350	0.700	....	....	....
2	Carbon, S.A.E. 1,050	0.500	0.700	....	....	....
3	Manganese, 1.35%	0.370	1.300	....	....	....
4	Manganese, 1.75%	0.370	1.650	....	....	....
5	Chrome nickel, S.A.E. 3,130	0.300	0.700	0.600	1.250	....
6	Chrome molybdenum, S.A.E. 4,130	0.300	0.700	0.700	....	0.200
7	Nickel molybdenum, S.A.E. 4,615	0.150	0.500	....	1.750	0.250
8	Nickel molybdenum iron	0.050	0.150	....	3.000	0.200
9	Toncan iron	0.050	0.200	(0.500 copper)		0.150
10	Wrought iron	0.040	0.040	....	....	....
11	Nickel wrought iron	0.040	0.040	....	2.500	....

*The other usual elements (phosphorus, sulphur and silicon) are present in normal amounts.

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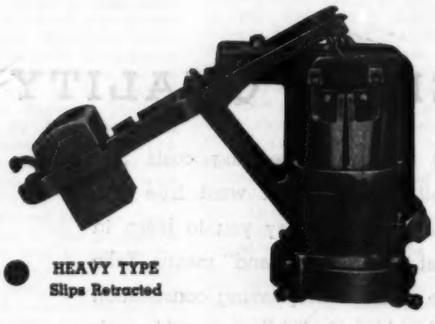
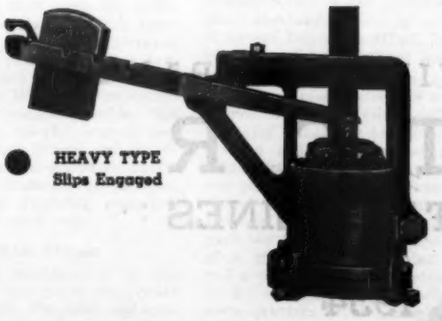


HEAVY TYPE
Slips Retracted



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are much greater than the angle of the perfect thread, two factors which should favor resistance to fatigue. The most plausible explanation for such failures is that the design of the pin creates a condition of stress concentration in the vanishing thread considerably over and above that natural to the perfect thread.

Recognition of this condition led to the development of the so-called undercut joint shown at the right of Figure 6. It differs from the regular A.P.I. design on the left only in the section between the perfect threads and shoulder of the pin. The vanishing thread has been discarded and in its place is substituted a filleted zone comprised of two radii merged tangentially at the point of maximum undercut. The minimum diameter of the undercut section in a three-quarters inch pin is approximately 0.020 inch less than the root diameter of the thread.

The purpose of the change in contour is to accomplish a more uniform distribution of stress by an action which can be considered analogous to the effect of constrictions in a tube through which liquid is flowing. If the constriction is abrupt and uneven, turbulent flow and violent eddy currents are set up whereas, the change is gradual and smooth, eddy currents are avoided and turbulence is reduced to a minimum.

Visual evidence that undercutting accomplished this effect to a surprising degree may be seen by comparing Figures 7 and 8 which are photographs of the stress distribution obtained by photoelastic methods in celluloid models of an A.P.I. and an undercut pin constructed to scale and loaded in a longitudinal direction. The lines of stress in these celluloid models are produced by a variable impedance to the transmission of polarized light offered by the stressed celluloid; they are proportional representations of the stress location and magnitude as they exist in the steel pins. The method affords an excellent means of demonstrating and studying these conditions which could not otherwise be shown or calculated.

The highly localized stresses at the vanishing thread of the A.P.I. pin in Figure 7 are very evident and in great contrast with the uniform distribution in the undercut pin in Figure 8.

Laboratory fatigue tests on this joint indicated that the life of a pin could be increased by undercutting as much as 50 to 100 per cent; field tests on experimental strings over a period of two years have demonstrated that, under actual operating conditions, the service may be still better. As evidence of this, one trial string gave 635 days of service with no pin failures and 13 total failures compared with the combined records of two previous strings which served 386 days with 18 total and 6 pin failures. Records of other test strings are not yet complete, but in every installation the proportion of pin failures has been lower than the general average for regular A.P.I. rods under similar operating conditions. Over 60,000 feet of undercut rods have been put into service within the past six months and to date no pin failures have been reported.

The joint presents no manufacturing difficulties and may, in fact, be an assistance in maintaining close control on thread tolerances. Field handling is identical to that of the A. P. I. joint with which it is, of course, interchangeable in every respect; the favorable reception it has received from the field crews augurs well for its more widespread use in the future.

Protective Coatings

Along with joint design and the study of materials for sucker rods, there have been more or less continuous efforts to develop some type of coating to protect rods against the ravages of corrosion. Galvanizing and cadmium plating have been tried sporadically with only indifferent results in very corrosive areas. Of the group of metals which may be applied by plating or hot-dipping, lead appears to have the greatest potentialities. Its great ductility and natural resistance to corrosion suit it admirably for sucker rod service. A major objection attends its use, however; if the rod is not perfectly coated accelerated corrosion due to galvanic action between the steel and lead is certain to cause rapid failure. Experimental strings of leadized rods were tried several years ago with excellent results after an initial "weeding out" of poorly coated rods. Their use never developed beyond the experimental stage, however, and at the present a source of such rods is no longer existent.

Two other types of protective metal-coated rods known as composite rods were given limited experimental trials. Examples of these are pictured in Figure 9. The joint at the right is made of carbon steel clad with wrought iron while the box and pin forgings at the left are examples of copper-clad rods. The purpose is, of course, to obtain the combined benefits of high strength steel and the corrosion resistance of the coatings. Forging difficulties and high cost are sufficient to offset any increased service provided by these materials.

Recently, attempts were made to provide protection to rods by means of paint, varnish and lacquer coatings. The value of such coatings except for protection during transportation or in storage has been definitely shown to be negligible and not worth the extra cost involved.

Manganese Steel

As pointed out previously, the first all-steel rods were made of plain carbon steel. With a continuous demand from the industry for stronger sucker rods the manufacturers were compelled to experiment with higher strength steels. Since heat-treating facilities were limited it was necessary to use a steel which would have the higher physical properties in the hot-rolled condition and still be machinable. Manganese steel, because of its air-hardening nature, fitted these requirements and was first used for the purpose by a sucker rod manufacturer in 1926. This steel contained approximately 0.40 per cent of carbon and 1.85 per cent of manganese; the tensile strength was more than 30 per cent greater than the plain carbon steel. Within a short time two other types of manganese steel were being used by other manufacturers. Both grades contained about the same percentage of carbon as the first, but the manganese contents were approximately 1.50 per cent and 1.30 per cent, respectively. Physical properties of both grades were somewhat lower than the steel of higher manganese content.

The next step forward resulted in manganese steel sucker rods that were fully normalized from end to end; the first time heat treatment of the entire rod was used regularly in sucker rod fabrication. Fully normalized sucker rods were first available in 1928. In some of

Fig. 7—Stress distribution in standard A.P.I. sucker rod joint. Note concentration at vanishing thread

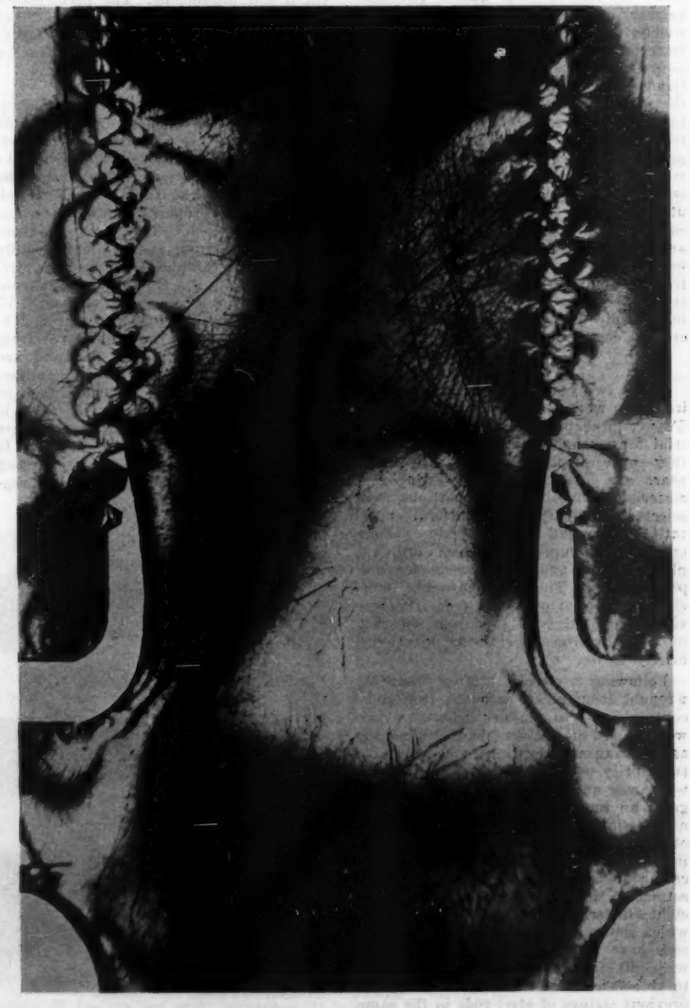

Fig. 8—Stress distribution in undercut sucker rod joint. Note more even distribution of stress throughout the whole pin

the Gulf Coast and Louisiana fields there is rapid localized corrosion at the point where the normalizing treatment stops in rods that have been only end normalized. The normalizing of the full rods completely eliminated this type of corrosion and more than doubled the service.

Heat-Treated Alloy Steel

The advantage evident under certain conditions of operation from the use of fully normalized manganese steel provided the incentive and impetus required for the next logical attempt to improve sucker rod service with the result that about four years ago fully heat-treated alloy steel rods were developed. The heat treatment consisted of a quench and draw instead of normalizing and the advantages of alloy steels in the heat-treated condition could thereby be realized for sucker rods. The first alloy used was a chrome nickel steel; within the past two years quenched and drawn rods fabricated from two other steels have been available, plain carbon steel (S.A.E. 1,050) and chrome molybdenum steel (S.A.E. 4,130). Both of the latter steels are manufactured by methods carefully controlled to produce fine-grained steels with improved physical properties.

Rods for Sulphide Fields

During all this development of stronger steels and methods of heat treatment the problem of the type of rod best suited for use in the sulphide fields became more important because of the discovery and exploitation of fields in West Texas and Kansas. While it was easy to recognize the economy in using the high strength rods in the heavier nonsulphide wells it was soon found that this was not true even for much lighter wells in the sulphide fields. Although neither manufacturer nor oil producer wished to be compelled to select special materials to suit unusual conditions it is now generally recognized that this is so. Gradual realization of this fact during the past three years has resulted in the testing of more different kinds of material than was the case in the entire previous 30 years since the first steel rods were made. Careful analysis of service records indicated that of the regular grades of steel the manganese steel containing about 0.35 per cent carbon and 1.30 per cent manganese gave the best results in sulphide fields. A few test installations indicated that nickel steels were somewhat more satisfactory, but hardly in proportion to their increased cost.

Wrought Iron

About two years ago the first wrought iron rods were placed in service in West Texas; probably constituting the first trial for wrought iron sucker rods since they were displaced by steel over 30 years ago. As is usual in testing new material the most severe conditions were selected. Contrary to the general expectation, wrought iron quickly demonstrated its superiority over ordinary plain carbon and alloy steels for sulphide service. This outcome might, however, have been predicted from the previous limited tests of steel rods sheathed in wrought iron which were mentioned briefly above.

Following closely after regular wrought iron, nickel wrought iron rods, containing about 3.5 per cent of nickel, were placed in service about 18 months ago in Kansas. Here again a conclusive superiority over steel for use in sulphide wells was quickly established. Just how great an improvement has resulted it is not possible to state since the first string of nickel wrought iron rods is still giving excellent service. Some indication can be obtained from the summary of service to date of 13 strings in wells of eight different companies in Kansas which shows that the nickel wrought iron rods have a combined life of 3,228 days with 40 failures as compared to the total service life to completion of the previous strings of steel rods in the same wells of 1,358 days with 198 failures.

Speculation as to the limits of service which can be imposed upon wrought iron cannot be changed to certainty at this time. It seems fairly evident that improved service can be obtained in any sulphide fields that are now being pumped, including the prolific fluid producers of Kansas as well as the heavy pumpers of Seminole. It is probable that Seminole closely approximates the maximum depth for which even the higher strength nickel wrought iron is suited. Neither is it now known whether wrought iron rods can maintain their superiority in the corrosive nonsulphide fields. From totally inadequate data available this seems to be at least doubtful if not improbable. The performance of both regular and nickel wrought iron is remarkable since neither has demonstrated an ability to resist corrosion by oil well fluids to any unusual degree.

TABLE 2—PHYSICAL PROPERTIES OF SUCKER ROD STEELS

No.	Type—	Heat treatment	Yield point (lbs./sq.in.)	Tensile strength (lbs./sq.in.)	Elongation (% in 2 in.)	Reduction of area (%)	Brinell hardness	Charpy impact resistance (ft. lbs.)
1	Carbon, S.A.E. 1,035	End quenched	55,000	85,000	30.0	55.0	170	30.0
2	Carbon, S.A.E. 1,050	Fully normalized	55,000	90,000	20.0	40.0	190	20.0
		Fully quenched and drawn	85,000	120,000	20.0	55.0	250	25.0
3	Manganese, 1.25%	End or fully normalized	65,000	100,000	25.0	55.0	220	30.0
4	Manganese, 1.75%	Fully normalized	70,000	115,000	25.0	50.0	240	25.0
5	Chrome nickel, S.A.E. 3,130	Fully normalized	75,000	100,000	25.0	65.0	210	50.0
6	Chrome molybdenum, S.A.E. 4,130	Fully quenched and drawn	100,000	130,000	30.0	65.0	250	48.0
7	Nickel molybdenum, S.A.E. 4,615	End or fully normalized	55,000	90,000	28.0	55.0	180	30.0
8	Nickel molybdenum iron	End normalized	50,000	62,000	35.0	65.0	140	40.0
9	Toncan iron	End normalized	42,000	50,000	40.0	75.0	100	55.0
10	Wrought iron	End normalized	38,000	48,000	30.0	40.0	90	20.0
11	Nickel wrought iron	End normalized	50,000	62,000	30.0	45.0	150	20.0

TABLE 3—SUITABLE OPERATING CONDITIONS FOR SUCKER RODS

No.	Type—	Heat treatment	Suitable service conditions	Maximum allowable stress (lbs./sq.in.)
1	Carbon, S.A.E. 1,035	End quenched	Nonsulphide, light to medium heavy	18,000
2	Carbon, S.A.E. 1,050	Fully normalized	Nonsulphide, light to medium heavy	20,000
		Fully quenched and drawn	Nonsulphide, noncorrosive, heavy	32,000
3	Manganese, 1.25%	End or fully normalized	Nonsulphide, medium to heavy	30,000
			Low sulphide, medium heavy	25,000
4	Manganese, 1.75%	Fully normalized	Nonsulphide, heavy	30,000
5	Chrome nickel, S.A.E. 3,130	Fully normalized	Nonsulphide, medium heavy	28,000
6	Chrome molybdenum, S.A.E. 4,130	Fully quenched and drawn	Nonsulphide, noncorrosive, heavy	35,000
7	Nickel molybdenum, S.A.E. 4,615	End or fully normalized	Sulphide, medium heavy	28,000
8	Nickel molybdenum iron	End normalized	Sulphide, medium heavy	30,000
9	Toncan iron	End normalized	Sulphide or nonsulphide, light	15,000
10	Wrought iron	End normalized	Sulphide, medium	23,000
11	Nickel wrought iron	End normalized	Sulphide, medium to heavy	30,000

Low Carbon Alloy Steels

The altogether phenomenal results obtained by the use of wrought iron rods and their comparatively high cost have focused concentrated efforts on the cheaper low carbon alloy steels which have physical properties about the same as wrought iron. The first of these steels, the cheapest and the most readily obtainable is the nickel molybdenum carburizing steel, S.A.E. 4,615, which contains about 0.15 per cent carbon, 1.75 per cent nickel and 0.25 per cent molybdenum. Rods were first fabricated from this steel about one year ago and are now obtainable from three manufacturers. Although over 600,000 feet of these rods are in service the time is entirely too short to permit any accurate appraisal of their ultimate ability. It seems quite positive, however, that they are distinctly more serviceable than regular steel rods in sulphide wells and perhaps, unlike wrought iron, their use may not be restricted to the sulphide fields. No direct comparison of any significance can be made between the nickel molybdenum steel and nickel wrought iron.

Alloy steels with even lower carbon contents which are, in reality, alloy irons are being tested extensively both in Kansas and West Texas. All of them contain not more than 0.05 per cent of carbon and nickel in varying amounts up to 3.5 per cent. One or two varieties contain small proportions of other alloying elements. Since none of these experimental installations has been in service for more than six months it is too early to judge what their ultimate life will be. However, the performance thus far has been on a par with nickel wrought iron under identical conditions thereby holding out hope that a satisfactory and less costly material than wrought iron will eventually be developed for use in the troublesome sulphide fields.

Some very interesting investigational work is now in progress which will, if successful, provide rods capable of giving satisfactory service under sulphide conditions at a cost much less than any of the special types in use at present.

Properties of Sucker Rods

Unless the recent developments in materials have been rather carefully followed it is confusing, perhaps, to select the most economical type of sucker rod for a particular kind of service. The accompanying tables, which summarize the properties of the various steels now regularly used for sucker rods, may be of help in making such selections. The kind of service for which each is suited represents only the opinion of the authors resulting from the analysis of numerous trial installations under a wide variety of operating conditions. It should be borne in mind that only very limited field data with the newer low carbon alloys are available at this time so that Table 3 may possibly require some subsequent revision.

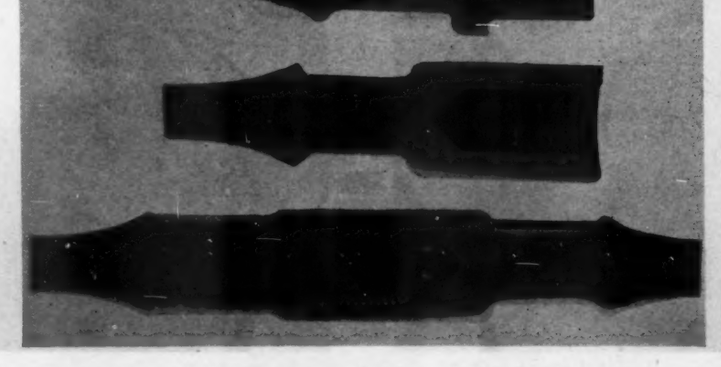

Fig. 9—Left, steel pin and box with outer copper sheath. Right, steel joint with outer sheath of wrought iron

Acknowledgments

The authors acknowledge with appreciation information which made this article possible from the S. M. Jones Co., the Oil Well Supply Co., Axelson Manufacturing Co., the A. M. Byers Co. and the National Supply Co. They are indebted to Dr. P. D. Foote, executive vice president of the Gulf Research & Development Corp., for permission to publish the article.

EVAPORATION BULLETIN

Recognizing the importance of reducing the loss of crude petroleum and gasoline due to evaporation, the U. S. Bureau of Mines assigned Ludwig Schmidt to the task of preparing a new bulletin on this subject which has just come off the press and contains all the pertinent data that has been gathered by the bureau during the past 10 or 12 years of its experimental work in this field.

This new bulletin is numbered 379 and entitled "Applied Methods and Equipment for Reducing Evaporation Losses of Petroleum and Gasoline." Copies may be secured from Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., for 20 cents per copy.

The book is divided into three principal parts, the first dealing with evaporation losses on producing leases, the second with evaporation in transportation and storage of crude oil and the third with evaporation of gasoline. The book contains 160 pages, indexed and fully illustrated.

UNION OIL PROFIT

LOS ANGELES, Calif., Oct. 13.—A net profit of $1,400,000, equivalent to 32 cents a share on those outstanding, was reported by the Union Oil Co. for the three months ending September 30. This profit is after all charges, including general expenses, taxes, interest and the like. Figures for the preceding quarter showed an operating loss of $200,000. For the third quarter of last year, there was a net profit of $1,050,000. The usual quarterly dividend of 25 cents a share was declared.

ALEX M. ALEXANDER DEAD

Alex M. Alexander was killed in an explosion in a chemical laboratory in New York on September 10. He was born in Russia on June 15, 1898. His earlier schooling was in Russia. He then studied two years at Polytechnic Institute. After attending the University of Pittsburgh two years, he was graduated in 1924. He was employed as a geologist by Wentz Oil Co. and later by the Empire Oil & Refining Co.

Indications of Firmer Market in Chicago Territory; Consumption Holding Up

By SPECIAL CORRESPONDENT

CHICAGO, Oct. 15.—For the first time in weeks, indications here at the opening of the week were that the tide might be turned toward definitely firmer and stronger tank car gasoline markets, with offerings of material considerably reduced and sellers showing a more definite tendency to stand on their prices. This developed simultaneously with reports the Government was about to start its long deferred clean-up of the hot oil situation. In the last week or so, the selling trade has been on the "ragged edge" both from the standpoint of morale and from the standpoint of return at ruling prices of gasoline.

Through it all, consumption is holding up well. Retail gallonage reports are a little spotty but on the whole the volume is making an encouraging autumn showing. The fact that a large share of this business is being taken at unprofitable prices, or prices netting sellers considerable losses, is taking the edge off the situation and turning the optimism which otherwise would exist into pessimism. Tank wagon and service prices throughout the central states are honeycombed with price cuts, especially at the smaller points. This is regarded as being a direct result of the prevalence of low-priced tank car gasoline offers. The public is buying gasoline at extremely low prices in numerous districts. In numerous quarters the feeling is established that no real cure for the situation can be expected so long as hot oil continues to make cheap tank car gasoline a commonplace condition.

Jobber stocks of gasoline remain quite low, and they show no particular disposition to do anything about it. Many of them assert they are on a permanent hand-to-mouth policy. Assuming this is the case, they probably have smaller stocks of gasoline and allied products than in a long time. The unsettled status of contracts, margins and similar questions makes them cautious at present, and they are protecting their current cash positions as far as possible.

Marginal protection for jobbers is operating in a great many cases. Stabilization committees have been meeting with highly variable results in their efforts to straighten out local price cuts, some rather successful, some utter failures. Many are despairing of fundamental improvement until the flow of hot oil is controlled. Increased spot market purchases by jobbers and tank car buyers generally is a strong possibility for the coming year, although this situation is not yet in shape to permit a definite assaying of opinion. At present, contract movement is good and spot market activity is limited.

Leaving Code

Spread of local jobber and dealer revolt from the code is an element causing much interest at present. In many areas local marketer groups have served notice of their decision to set up their own codes, naming lack of enforcement of the general code as being responsible for much of the current marketing difficulties.

Meanwhile, ruling tank car gasoline prices are approaching the lowest point in many years again and this on a high crude structure. This is increasing the general tension and making for a highly disorganized situation. The whole trade believes that a general showdown on the whole market situation is due immediately.

High grade gasolines are holding up better than low grade, but even these are weak. In some northern regions there is some little interest in cold weather products.

Kerosene

Interest in kerosene on the part of some large marketing companies for

(Continued on Page 50)

Crude Oil Prices

(Continued from Page 25)

Effective September 20 in Salt Flat by Shell Petroleum Corp.

Rocky Mountain States

Iles, light (Sept. 29, 1933)	$.95
Iles, heavy (Sept. 29, 1933)	.90
Florence, Colo. (June 17, 1933)	.30
Fort Collins and Wellington, Colo. (June 17)	See Salt Creek prices
Big Muddy (Sept. 29, 1933)	1.01
Frannis, light (May 1, 1934)	.70
Frannie, heavy (Sept. 29, 1933)	.62
Salt Creek and LaBarge (Sept. 9, 1933)	See Stanolind Mid-Continent price schedule
Grass Creek, light (Sept. 29, 1933)	1.18
Grass Creek, heavy (Dec. 15, 1932)	.45
Elk Basin (Sept. 29, 1933)	1.18
Rock Creek (Sept. 29, 1933)	1.02
Dutton Creek (July 8, 1933)	See Mid-Continent gravity prices
Lance Creek (Dec. 16, 1933)	.92
Poison Spider (Mar. 5, 1931)	.70
Hudson (June 2, 1931)	.65
Lander (Mar. 5, 1931)	.40
Rex Lake (Feb. 22, 1930)	1.10
Osage	1.08
Lost Soldier (Sept. 30, 1933)	.85
Hamilton Dome:	
Below 16° (July 1, 1934)	.52
16° and above (July 1, 1934)	.62
Torchlight (Sept. 29, 1933)	1.18
Greybull (Sept. 29, 1933)	1.18
Pondera	1.15
Sunburst (Sept. 29, 1933)	1.35
Cat Creek, Montana	1.07
Hogback (Sept. 29, 1933)	1.11
Lea County, N. Mex. (Sept. 29, 1933)	.75
Maljamar (Sept. 29, 1933)	.79
Artesia-Jackson (Dec. 1, 1933)*	.75

Note—Salt Creek, Torchlight, Elk Basin, Grass Creek, Frannie, Greybull, Hogback and Iles by Stanolind Oil & Gas Co. Elk Basin, Grass Creek light, Big Muddy, Rock Creek and Sunburst by Ohio Oil Co. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Lea County, effective September 29, 1933, by Humble Oil & Refining Co. and other buyers; Fort Collins, Wellington, Orchard, Florence, Big Muddy, Cat Creek, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro. Hamilton Dome, Wyo., by Stanolind Oil & Gas Co.

*Continental Oil Co.

North Louisiana and Arkansas

Smackover, Ark. (all grades)	$.70
Tullos, Urania, La. (Jan. 13, 1934)	.87
Nevada, Ark. (Sept. 29, 1933)	.60
East El Dorado (Sept. 29, 1933)	.70
Converse, La. (Mar. 17, 1934)	1.03
Elm Grove, La. (Sept. 29, 1933)	.75
Holly, La. (Nov. 17, 1934)	1.03
Pleasant Hill, La. (Mar. 17, 1934)	1.03
Zwolle, La. (Mar. 17, 1934)	1.03
Champagnolle, Ark. (Mar. 17, 1934)	.81
Lisbon, Ark. (Mar. 17, 1934)	1.03
Stephens, Ark. (Sept. 29, 1933)	.70
Urbana, Ark. (Mar. 17, 1934)	.60
Other fields	See gravity table

Note—Smackover: Effective September 29, 1933, Texas Co., Magnolia Petroleum Co., Standard of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co. and Phillips Petroleum Co. East El Dorado posted by Magnolia Petroleum Co. and Gulf Refining Co., Nevada by Standard Oil Co. of Louisiana. Urbana posted by H. L. Hunt, Inc., and Louisiana Oil Refining Co. Converse, Holly, Zwolle and Urbana by Standard Oil Co. of Louisiana; Elm Grove by Simmons Oil & Refining Co.; Pleasant Hill by Standard Oil Co. and Magnolia Petroleum Co.; Champagnolle by Standard Oil Co. and Lion Oil & Refining Co.

Eastern States

TIDE WATER PIPE CO.
(Effective May 1, 1934)

Bradford, Pa.	$2.55
Allegheny, N. Y.	2.55

SOUTH PENN OIL CO.
(Effective May 1, 1934)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field)	$2.55
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.32
Pennsylvania Grade Oil in Eureka Pipe Line lines	2.17
Pennsylvania Grade Oil in Buckeye Pipe Line lines	2.07
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (Oct. 2, 1933)	1.32

PENNZOIL CO.
(Effective May 1, 1934)

Pennsylvania Grade Oil in National Transit Lines:	
Group A (Includes Cochran, Franklin, Hamilton and Doolittle districts.	$2.47
Group B (Includes Titusville district.	2.46
Group C (Includes Turkey and Tidioute districts.	2.45
Group D (Includes Bear Creek and Porkey districts.	2.44
Group E (Includes Elcheneau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kennerdell, Emienton, Tiona, Lacey and Kinzua districts.	2.42

Price depends on length of pipe line haul to plant at Oil City.

PURE OIL CO.
(Effective May 1, 1934)

Cabin Creek, W. Va.	$2.17
Bradford Hollow, W. Va.	2.17
Kelly Creek, W. Va.	2.17

CREW-LEVICK CO.

Oil City-Titusville	$2.47

Middle Western States

OHIO OIL CO.
(Effective September 29, 1933)

Lima	$1.80
Illinois (Jan. 5, 1934)	1.15
Princeton, Ind. (Jan. 5, 1934)	1.15
Plymouth	Shut in.
Western Kentucky (May 26, 1934)	1.06
Midland, Mich. (Sept. 30, 1933)*	1.03
Oceana, Mich. (Oct. 5, 1933)	.90
Somerset, Ky. (Sept. 30, 1933)	1.32

*Posted by Pure Oil Co. Producers Pipe Line Co. pays 5 cents per barrel over Pure Oil Co.'s posted price. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and posted price includes premium. Oceana posted by Old Dutch Refining Co. and Naph-Sol Refining Co.

Canada

Ontario (September 9, 1933):	
Petrolia*	$2.17
Oil Springs	2.17
Turner Valley (May 21, 1934):†	
Clear naphtha	$2.55
Discolored naphtha	2.27
Crude oil, 50 gravity	2.12
Crude oil, 45 to 49.9	2.07
Crude oil, 40 to 44.9	1.80

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Regal Oil & Refining Co.

Mexico

Panuco*	$0.96

*F.o.b. ship, based on August transactions and exclusive of production and export taxes and bar dues.

California Crude Oil Prices

STANDARD OIL CO. OF CALIFORNIA
(Effective September 6, 1933)

For current purchases of crude oil at the well (unless otherwise specified). (All gravities above those quoted take highest price offered in that field.)

Gravity—	Long Beach	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda, Brea Canyon	Athens-Rosecrans	Torrance	Richfield	Whittier, La Habra	Montebello	Santa Fe Springs	La Habra-Coyote	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills	Coalinga	Coyote
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	....	$.65	$.65	$.65	$.65	....	$.65	$.57	$.57	$.57	$.65
15-15.9	.66	.65	.69	.69	.66	.69	....	.66	.65	.65	.65	....	.65	....	....	....	.65
16-16.9	.66	.65	.72	.73	.69	.73	....	.69	.67	.68	.65	....	.65	....	....	....	.65
17-17.9	.69	.65	.75	.76	.73	.76	....	.72	.70	.71	.65	....	.68	....	....	....	.68
18-18.9	.72	.65	.78	.80	.76	.79	....	.75	.74	.74	.65	....	.71	.61	.61	.59	.71
19-19.9	.75	.65	.81	.83	.80	.82	....	.78	.78	.78	.65	....	.74	.64	.65	.62	.74
20-20.9	.78	.68	.83	.87	.83	.85	....	.81	.82	.81	.66	....	.78	.67	.69	.65	.78
21-21.9	.81	.72	.86	.90	.87	.88	....	.83	.86	.84	.69	$.72	.81	.70	.73	.68	.81
22-22.9	.84	.76	.89	.94	.90	.92	....	.85	.89	.87	.73	.76	.84	.73	.76	.72	.84
23-23.9	.88	.81	.92	.97	.94	.95	$.83	.89	.92	.90	.76	.79	.87	.77	.79	.75	.87
24-24.9	.91	.85	.95	1.01	.97	.98	.86	.92	.97	.93	.80	.83	.90	.81	.82	.78	.90
25-25.9	.94	.89	.98	....	1.00	1.01	.90	.95	1.00	....	.85	.87	.93	.85	.85	.81	.93
26-26.9	.97	.93	1.01	....	1.04	1.04	.94	.98	1.04	....	.89	.90	.96	.89	.88	....	.96
27-27.9	1.00	.98	1.04	....	....	1.07	.97	....	1.08	....	....	.94	.99	.93	.91	....	.99
28-28.9	1.03	1.02	1.07	....	....	1.10	1.01	....	1.11	....	....	.98	1.02	.97	.94	....	1.02
29-29.9	1.06	1.06	1.09	....	....	....	1.04	....	1.15	....	....	1.01	1.05	1.01	.97	....	1.06
30-30.9	1.09	1.10	1.12	....	....	....	1.08	....	....	....	....	1.05	1.09	1.05	1.00	....	1.09
31-31.9	....	....	....	....	....	....	1.12	....	....	....	....	1.08	1.12	1.09	....	....	1.12
32-32.9	....	....	....	....	....	....	1.15	....	....	....	....	1.12	1.15	1.12	....	....	1.15
33-33.9	....	....	....	....	....	....	....	....	....	....	....	1.16	1.18	1.17	....	....	1.18
34-34.9	....	....	....	....	....	....	....	....	....	....	....	1.19	1.21	....	....	....	1.21
35-35.9	....	....	....	....	....	....	....	....	....	....	....	1.23	....	....	....	....	....
36-36.9	....	....	....	....	....	....	....	....	....	....	....	1.26	....	....	....	....	....
37-37.9	....	....	....	....	....	....	....	....	....	....	....	1.30	....	....	....	....	....
38-38.9	....	....	....	....	....	....	....	....	....	....	....	1.34	....	....	....	....	....

Additional Standard Oil Quotations

Mountain View—Effective July 3, 1934, the following are the prices of the Standard Oil Co. of California for its current purchases of crude oil at the well in the Mountain View Field; 14 to 19.9 degrees, 57 cents; 20-20.9, 58 cents; 21-21.9, 59 cents; 22-22.9, 61 cents; 23-23.9, 63 cents; 24-24.9, 66 cents; 25-25.9, 69 cents; 26-26.9, 72 cents; 27-27.9, 75 cents; 28-28.9, 78 cents; 29-29.9, 81 cents; 30-30.9, 84 cents; 31-31.9, 87 cents; 32-32.9, 90 cents; 33 degrees and above, 93 cents.

Elwood Terrace—F.o.b. ship, 33 degrees, $1.03; 34 degrees, $1.06; 35-35.9, $1.09; 36-36.9, $1.12; 37 degrees and over, $1.15.

Newhall—14 degrees and over, 57 cents.

McKittrick and Kern River—14 degrees and over, 57 cents.

Wheeler Ridge—14 to 17.9 degrees, 57 cents; 18-18.9, 58 cents; 19-19.9, 61 cents; 20-20.9, 64 cents; 21-21.9, 67 cents; 22-22.9, 70 cents; 23-23.9, 73 cents; 24-24.9, 76 cents; 25 degrees and over, 79 cents.

Kettleman Hills—33-33.9 degrees, 93 cents; 34-34.9, 96 cents; 35-35.9, 99 cents; 36-36.9, $1.02; 37-37.9, $1.05; 38-38.9, $1.08; 39 degrees and over, $1.11.

The Texas Co. posted in Shiells Canyon, South Mountain and Santa Paula as follows: 14 to 17.9, 57 cents; 3 cents added for each degree up to and including 26-26.9 degrees at 84 cents; then 4 cents added for each degree up to and including 30 degrees and over at 91. Company posts Standard Oil Co.'s Montebello prices in Montebello and North Whittier, and posts Standard Oil Co. prices in Signal Hill, Alamitos Heights, Huntington Beach, Torrance, Richfield and Santa Fe Springs, all effective September 6.

General Petroleum Co. posts Standard Oil Co. prices in Athens, Rosecrans and Signal Hill; Alamitos Heights up to 26-26.9; Santa Fe Springs up to 35-35.9; Richfield up to 25-25.9; Brea Canyon and Olinda up to 25-25.9, and Torrance up to 25-25.9.

Union Oil Co., effective September 6, posts same price as Standard Oil Co. in all fields in which both purchase, excepting that in Athens-Rosecrans, Union Oil Co. posts 21-21.9, 72 cents, and 33-33.9, $1.18; 34-34.9, $1.21, and 35-35.9, $1.24.

Associated Oil Co., effective September 6, posted same prices for the same grades as Standard Oil Co. of California, excepting that in some fields its gravity scale stops as follows: Huntington Beach, 26 degrees and over; Seal Beach and Alamitos Heights, 26 degrees and over; Coyote Hills, 23 degrees and over; Richfield, 25 degrees and over; Torrance, 25 degrees and over; Inglewood, 24 degrees and over; Santa Fe Springs, 35 degrees and over; Midway-Sunset, Elk Hills, Buena Vista Hills, 30 degrees and over. Also Associated pays 53 cents for oil of 11 to 13.9 gravity in McKittrick, Kern Front, Kern River, Midway-Sunset, Elk Hills, Buena Vista Hills and Coalinga.

MISSION MANUFACTURING CO.

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MISSION SLIPS and VALVES

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THE NEW IMPROVED MISSION VALVE

NEW IN MATERIAL in anticipation of still deeper wells. But the same fundamental design that was such an astounding and radical improvement when it was first introduced in 1929 .... giving length of life formerly believed impossible in slush pump valve service.

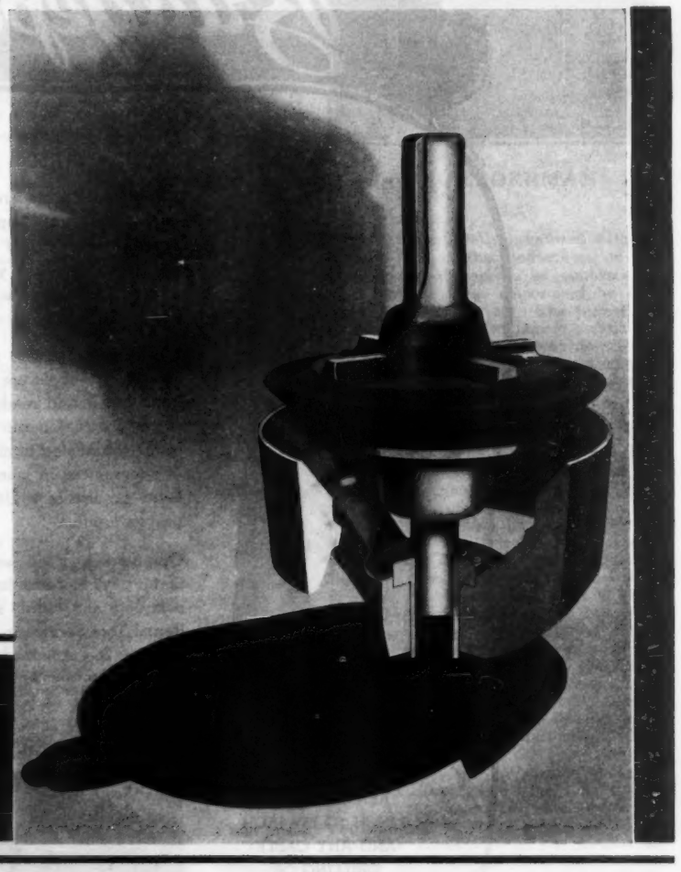
THE NEW BUSHING is made of new, better, and more expensive material with especial attention given to grain flow and inspection to maintain accuracy and high standard of quality.

In the Mission Valve a removable bushing (see in the sectional illustration at the right) takes the impact and not the seat, thus eliminating the terrific blows on the seat or sealing surface which so quickly destroy the seat and insert of the old fashioned type slush pump valve. The Mission Valve designed on an entirely new principle gives length of life heretofore believed impossible in slush pump valves.

While the previous bushing was made of good material and was easily and quickly replaceable at small cost without pulling the seat . . . the NEW bushing, likewise replaceable, makes even this simple operation a very infrequent one.

THE NEW SEAT is made by a new method of forging which gives a better grain flow. This improvement together with the strengthening of parts subject to heaviest contacts results in a stronger and longer wearing seat.

PRICE REMAINS THE SAME . . . YOU GAIN THE DIFFERENCE. A tremendous increase in sales makes it possible for us to give you this more-valve-service-per-dollar.



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2. Mission Slips can be completely overhauled on the derrick floor by easily and quickly replacing wearing parts. Economical because no extra slips are necessary and because of saving trips to shops.
3. Low maintenance cost. The principle of a friction slip rather than a biting hold extends the life of the gripping surface far beyond that of the conventional type slip.
4. Ideal for flush joint pipe. It does not mar the pipe thus eliminating the major cause of damage to the stuffing box packing.
5. Reduces casing corrosion. Friction contact does not break through the scale on casing, thus preserving one of the chief factors in preventing corrosion.
6. The body of the Mission Slip is practically indestructible. Low cost of replacement parts assures minimum upkeep, and makes possible a great saving in money.
7. Mission Slips not a wedge but a piece of machinery designed so that it positively will not stick in bushing or damage pipe. The gripping mechanism consists of stacks of independently movable dogs that make a larger area of contact on the pipe than any other slip on the market.
8. Mission Slips have been used practically 100% on every well drilled below 8,000 feet in the Mid-Continent Area and are now making records in California. Only unusual merit can deserve such unusual preference.

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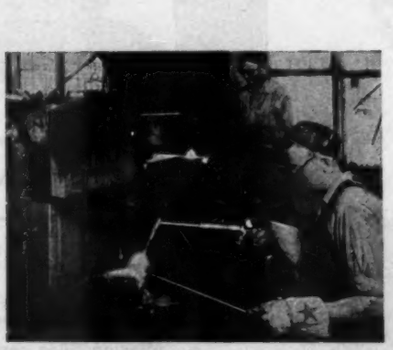

Bridgeport Rental Tools are kept in first class repair in the factory where they were built. They are always ready to run when they reach the job.

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Federal Regulation of the Oil Industry Carried to Extremes

By W. P. Z. GERMAN
General Attorney for Skelly Oil Co.*

A question now confronting the people of this country is this: Without regard to the New Deal and NRA, shall the United States Government take part in the regulation of the oil business? This is a question chiefly for the concern of those in a proprietary position, but, certain it is that legislators will consider it and politicians will not forget about it. I therefore see no reason why you, as engineers, particularly the geologists and petroleum engineers, and myself, as a lawyer, may not talk about it all we choose.

The question I have asked reminds me of an actual occurrence some years back. An attorney had been employed to defend a suit brought by a negro man to cancel a deed he had executed conveying a farm. The negro claimed he was under legal age when he made the deed and if this were true the deed was void. The defendant, granted in the deed, employed another negro to go out in the community where the colored plaintiff was born to find, if he could, witnesses who knew the exact date of birth of the plaintiff. No birth records existed, as all of them already knew. After the investigator had received proper instructions from defendant's attorney he turned to go, and then, from former experience with the members of his race, he had the thought that here again he could produce witnesses to testify to whatever suited the case; so, he turned to the attorney and inquired, "Mr. ———, when ought this nigger to have been born?" Every one must agree that the oil man can find arguments on both sides of the question we are considering.

Surely the mind of the public is not regarding the present effort of the Federal Government to stabilize the oil industry as a permanent rather than a temporary measure. It will terminate on or before June 13, 1935, unless the Congress determines to extend it or adopts some other method or system of Federal regulation. Some of those who, a year ago, were such enthusiastic supporters of the movement have become luke-warm and are less disposed to help. We are justified in wondering what is at the bottom of this change of heart on their part.

Let it be understood that any views which I may express are my own and that I have no authority to express any view which my company may entertain. I am speaking solely because your committee requested it.

One Real Curiosity

Some anomalies are curiosities. Under NRA we have one anomaly that is a real curiosity. The National Industrial Recovery Act declares expressly for increasing production in order to stimulate business; whereas, the oil industry, one of the businesses included in the act, would decrease its production in order to stimulate its business. In other lines of business the general economic stagnation resulted in diminished production; whereas, regardless of the general economic depression, production of oil kept on increasing and every effort had to be made to curtail it. Among other things, NRA was intended and has been used to try to start factories and augment output and commerce in all lines of endeavor, except oil and agriculture; it has been used to try to lessen the production and the movement of oil and its products.

What lesson does this curious situation teach those who are connected with the oil business? It harks back to a threadbare story to which I must refer sufficiently to lay a foundation for thought as to what the position of the oil man should be on the question under consideration. It harks back to the old story of the necessity for the proration of oil production to market demand. The necessity for proration to market demand grows out of certain fundamental facts. These are facts which should be kept constantly in mind when thinking about governmental interference with the business. It is a privately owned and privately operated commercial enterprise. Except for these facts, there does not seem to me to exist any reason for the intervention of either the state or the nation.

Oil is a natural resource; it is not a manufactured commodity; it is found in the ground in pools within the farms of not one, but a large number of landowners; each owner or his lessee has a right to penetrate the pool beneath by wells drilled on his own land and, unless restrained by legislative enactment, to withdraw every barrel he can, and he owns all he withdraws—a right which no adjoining landowner can regulate or restrict; the right of every owner is coequal to that of every other owner; the fluid oil beneath is unlike the faithful dog, it will not stay with its owner until they are parted by death, for its loyalty is to others; it obeys the laws of gravity and pressure, with the result that any vigorous landowner has it in his power to appropriate unto himself that which belongs to his neighbors and even to destroy their rights; too many owners exercise this power, and at times the battle for appropriation has raged with keen intensity; it is not a competition to manufacture, to create, to produce a commercial product, for it is competition to acquire title to an existing substance which nature manufactured, created, produced. The only part man ever played in the drama was to discover its presence and, then, greedily to proceed to subject it to his own exclusive possession and ownership.

Has Gone Too Far

These enumerated facts back of the necessity for proration are among the controlling facts which have prompted NRA to attempt in the oil industry exactly the opposite of what it has attempted in all other lines of business except agriculture.

While NRA has endeavored to treat the disease of the oil business, too much oil coming out of the ground and moving in the channels of commerce, it has gone much further and has attempted to treat, as if they, too, were diseases, the evils growing out of too much reduction to possession. It has tried to curtail and regulate refining and marketing. This latter is like a physician rubbing salve on aching limbs instead of removing diseased tonsils or teeth or straightening fallen arches. Of course, it is sometimes well to ease the patient's suffering, if that can be done, while the root of the disease is being removed. Please observe the qualifying words "if that can be done." We must not be so unfair as to overlook the fact that NRA has had many other purposes to accomplish in respect of the petroleum industry than merely to relieve it from the ill consequences of excess production; but let us confine our thinking to a governmental regulation which would be intended to apply without regard to whether we have or do not have a general or nationwide economic depression.

Should it be said again, as it has been many times before, that we should look upon our discovered oil reserves as stocks on hand while they yet remain in the ground? Should it be said again that the remedy for the ailments of the oil business is to prohibit producers from waging the battle for appropriation of their neighbors' oil in the ground and to require that, as each one withdraws from the common warehouse, he shall extract no more than an amount equal to that which nature deposited in his little part of it and that no one of them shall bring out more from day to day or time to time than his own fair share of the market requirements?

If these things were done, two objectives would be attained, namely, first, property rights in oil lands would be protected against injury or destruction, and, second, a great natural resource would be conserved from waste; two objectives fondly to be sought after. Two objectives lying within the power of oil producers to attain by agreement, if they would; but some of them will not consent to do so. Two objectives lying within the police power of a state to exact of producers.

Two Objectives

If these two objectives, property-right protection and conservation in the interest of the general public and the nation, were attained, there would remain no point of disturbance of the tranquility of the oil business of the country which those engaged in that business would not be willing to undertake to handle without governmental meddling. The business of moving produced crude oil, of refining it into usable products, and of marketing the products, would then be similar to the processes of manufacture and sale of any other commodity, with the favorable exception that the oil business would not be annoyed with an excess of raw material brought out of its warehouses. As in other unregulated nonpublic utility industries, competition would go on at every point of the way including rivalry in the purchase of produced crude oil, with only two exceptions, namely, first, the effort of producers to take the property of their neighbors, and, second, the reckless struggle to be the direct cause of wasting a natural resource.

That the National Government can, under the Federal Constitution, exercise power, indirectly, if not directly, to treat the disease of withdrawing excess oil from its natural storage places, seems to me to be unquestionable. Congress is empowered to regulate commerce among the several states of the Union and with foreign countries, and this includes commerce in crude oil and the refined products of crude oil. Brainy men have conceived that quotas in commerce in produced crude and its refined products could, pursuant to congressional enactment, be established by a Federal agency and enforced, the total to move in commerce not to exceed the consumption requirements of the public; a quota to be established for each state, and, if need be, for each pool, each property, and each well. Some think that no circumstance would make it within the power of Congress to authorize the agency to go further than that and to restrain or regulate production from the ground; while others believe that if an act of

W. P. Z. GERMAN

production materially interfered with the enforcement of the limitations on the movement of the quotas in commerce the agency could, if so empowered by Congress, restrain that act. The former say production is not commerce, while the latter say it can become an interfering act and that an interfering act can be restrained whether or not it is commerce.

Is It Wise or Necessary?

But, is it wise or necessary for Congress to take a hand? Before the New Deal appeared a year ago, there was but one man, so far as I ever heard, who had thought of Congress stepping in. Some 10 years ago that man advocated it. His idea was rejected by leaders in the industry, and it died aborning. When the NRA came on, oil men seemed eager to enjoy the benefits of it, most of them, however, wondering what had become of the Constitution of the United States. All businesses were likewise affected—so why not take advantage of the opportunity. The one year's experiment has taught us that there are dangers present in a permanent setup of Federal interposition. In the first place, the Federal authorities acting under the Recovery Act have not yet put a stop to excess oil production, and, hence, have done little, if any, more than the states, acting under their police power, to accomplish the eradication of the disease afflicting the industry. It is the old story of not quite enforcing a good law. In the second place, the Federal effort has been extended to refining and marketing and even to contractual relations between employer and employe, and no state has extended its efforts into any of these fields and no state is likely to attempt to do so. If Federal interposition were made permanent and were initially limited to an effort to cure the cancerous heart of the disease, excess oil production, would it stop there? Once at work on the fascinating subject, with its opportunities for expansion of control of a vigorous, widely extended business, could politicians, led at times by overenthusiastic members of the industry acting on the spur of the moment's impulse, resist the temptation to make of it a footstool to toy and play with?

It is not fanciful to fear a danger that Congress itself or the Federal agency might go to extremes in the effort to restrain production unless proper restrictions be imposed. The expansion of means for stabilization under NRA to limitations on refinery throughput and to multidunious reports concerning refinery activities serve to illustrate the extent to which the regulations might go.

Many good men in the industry heartily favored the Thomas-Disney Bill last May; but a small group composed of

(Continued on Page 50)

*Presented before fall meeting, Petroleum Division, A.I.M.E., Tulsa.

First Disappointment in the Sam Fordyce Field; Large Gas Well Completed in Caesar Field

SAN ANTONIO, Tex., Oct. 15.—The recently discovered Sam Fordyce Field, in southwestern Hidalgo County, had its first disappointment during the week, when Alamo Drilling Co.'s No. 1 Ed Sullivan, 1,500 feet south and slightly east of the discovery well, tested salt water in sand from 2,768-80 feet, after being washed for five hours. Due west of this test another failure looms in Heep Oil Corp.'s No. 1 Teresa Flores, which is coring below 2,788 feet and had not encountered the pay horizon found in the discovery well. While the area to the south is being defined, interest is centered on Moncrief and Showers' No. 1 Guerra which is preparing to drill plug after coring sand from 2,755-68 feet. It is reported to be running considerable higher than the discovery, and is expected to be completed as a producer. It will extend the field 1,500 feet due north. Two wells northwest of the discovery have reached the pay and are preparing to cement casing. Heep Oil Corp.'s No. 1 Seabury, George and Taylor cored sand from 2,788-94 feet and is reaming down to set and cement casing. Otto Woods No. 1 Guerra cored sand from 2,760-66 feet and was also preparing to cement casing. Out of more than 40 locations made, 5 other tests have begun drilling operations and 7 have rigs up.

Otto Wood's No. 1 John Lawrence, the discovery well, was opened up during the week to keep it from blowing out of control, and late in the week it was still flowing open, making an estimated 5,000 to 10,000 bbls. per day. Tubing pressure before removing the christmas tree was 800 pounds. It is bottomed at a total depth of 2,753 feet.

Bee County

The Caesar area, northwestern Bee County, got the largest gas well completed in the county, and among the largest in the area when Falvey and others' No. 1 Gardner, west of the discovery well in the F. Lewis Survey, tested an estimated 100,000,000 feet of gas daily. The Pettus sand was drilled from 3,008-16 feet, but only 3 feet of sand was tested. On a 15-minute drill stem the well showed a working pressure of 950 pounds through an open 2-inch line. Closed in pressure was 1,175 pounds. In the same county, but in the West Tuleta Field, Edwin M. Jones' No. 3 Robinson is plugging back to the Pettus sand which showed gas. It was originally drilled to a total depth of 4,405 feet. United Production Corp.'s No. 46 George Ray, in the North Pettus Field, was completed as a gas well at 3,676 feet. Location is in the W. J. Porter Survey No. A-529.

Webb County

In the Bruni Townsite area of the West Cole Field, Webb County, five tests have reached the pay horizon and are due to be tested during the week. American Liberty Oil Co.'s No. 5-A Bruni estate cored sand from 3,406-19 feet and has cemented 7-inch casing at 3,406 feet. Total depth is 3,419 feet. Same operator's No. 1-B Bruni estate cored sand from 3,407-32 feet and cemented 7-inch casing at 3,406 feet, with a total depth of 3,432 feet. The two wells offset the discovery, and are east of the townsite of Bruni. Herman Brown's No. 2 Bruni estate, in Block 8, Foltz Subdivision, Survey No. 5, Arispe grant, cored sand from 3,409-30 feet, and has cemented 7-inch casing at 3,409 feet. It is bottomed at 3,430 feet. O. W. Killam's No. 27 Bruni, an offset well, in Survey No. 6, Arispe grant, has cemented casing at 3,404 feet, after coring sand from 3,406-11 feet. Cole Petroleum Co.'s No. 86 Benavides, north of Bruni, tested one joint of oil and 3,430 feet of salt water on a drill stem test at 3,400 feet and is plugging back to 2,300 feet, where it was reported to have had a showing of oil. It was originally drilled to a total depth of 3,990 feet.

Duval County

The Government Wells Field, Duval County, registered 11 completions, 9 of which were flowing wells. Four were completed by Magnolia Petroleum Co., two by Humble Oil & Refining Co., and the rest by independent concerns.

Live Oak County

A new producing horizon for the Lucas Field, Live Oak County, was discovered during the week, when Houston Oil Co.'s No. 27 Cartwright was completed for an initial production of 113 bbls. from a sand at 3,500 feet. The well is approximately in the center of the shallow gas producing area, with the majority of the acreage being unit owned by Houston Oil Co., which discovered the field for shallow gas production several years ago. More recently deeper production was discovered below 5,000 feet. The company has made location for its No. 28 Cartwright, 1,000 feet south of No. 27 Cartwright. Three miles northwest in the McNeil Field, Lion Oil & Refining Co. is drilling below 3,600 feet on its No. 2 McNeil. It is in Block 9, northeast of the discovery well. Coquart's No. 1 Little, 1 mile northwest of the discovery in the McNeil Field, is drilling below 1,000 feet, in the M. M. Shipp Survey.

Bexar County

Ten miles south of San Antonio, Linda Oil Co.'s No. 1 Tomasi, a wildcat in Bexar County, failed to develop production at 1,450 feet and is plugging back to 943 feet where it is reported to have had a show of oil. In testing the show of oil in the Edwards lime which was topped at 1,446 feet it tested sulphur water.

Piedras Pintas Dome

On the Piedras Pintas Dome, Duval County, Tom Graham and Texon Royalty Co. have cemented 7-inch casing at 3,475 feet, and are preparing to test their No. 2 Parr, an offset to the company's No. 1 Parr, which revived interest in this old field several months ago, by being completed for a 600-bb. well.

Frio County

Amerada Petroleum Corp.'s No. 2 Halff and Oppenheimer, a deep wildcat test in Frio County, has been shut down at 8,993 feet, waiting for drilling mud before being carried deeper. It is 4 miles southwest of Pearsall in the J. H. Gibson Survey.

Starr County

E. L. Younkins' No. 3 Kelsey Bass, a wildcat in southern Starr County, is preparing to make a drill stem test at a total depth of 1,746 feet. It cored sand with a show of oil from 1,740-46 feet. Location is in Block 19, B.&B. Oil Co. Subdivision of Porcion No. 87, Ancient Jurisdiction of Camargo.

Travis County

In the Kimbro area, eastern Travis County, Humble Oil & Refining Co.'s No. 1-B Buck Christian, in the Kemp Survey, has been completed for a nice well from the shallow Serpentine sand at 757 feet. It is reported to be good for about 200 bbls. per day on a seven-eighths inch choke. This is the best producer completed in this shallow producing area.

The wildcat test of Fidelity Exploration Co.'s No. 1 Soldivar, in Webb County, about 10 miles southwest of the Reiser Pool is being watched with considerable interest due to the test encountering several showings of oil and gas while drilling below 2,953 feet. It had a show of gas at 2,277-88 feet and an oil show from 2,288-97 feet. The last gas showing was from 2,953 feet.

San Patricio County

One-half mile east of production in the Sinton Field, San Patricio County, Heep Oil Corp.'s No. 4 Welder showed 900 feet of mud and oil on a drill stem test from 6,614-61 feet, and is preparing to make another test. It will probably be plugged back a few feet to shut off salt water which appeared on the drill stem test. If it makes a producer it will open a new sand, as the production from other tests in the field is coming from around 5,420 feet.

Brooks County

Several blocks are being assembled throughout the Southwest Texas district, and some interesting tests are to be drilled in the near future. In Brooks County, Mid-Continent Petroleum Corp. has purchased from the Lew Wentz Oil Co., the leases on the latter company's 5,000-acre block composed largely of the Cantu land. The Lew Wentz Oil Co. retains one-half of the fee owners' mineral rights, which it originally purchased along with the leases. This block is in the south central part of the county, and southeast of the block on which the Cole Petroleum Co. and Purnell's No. 1 Ulrich is drilling. Wentz Oil Co. paid 75 cents per acre for the original leases. In the northwest part of the same county, C. B. Bunte has assembled 14,000 acres and it is reported he will drill a deep test on the block after the first part of the year. In the same area, it is reported the 6,800-acre ranch of Scott and Hooper, in the Palo Blanco grant, has been leased. The purchaser was not reported.

Goliad County

In Goliad County, Republic Production Co. of Houston paid $2 per acre bonus for the B. P. Lutenbacher 195-acre tract which falls within the J. Clark and the El Paso Irrigation Co. Surveys. Texas Co. has renewed its lease in the same area on the Floyd Curtis 200 acres in the northern part of the Edmond William and James Murphy Surveys at $2 per acre bonus and $1 per acre rental. The two tracts of acreage are 3 miles south of the railroad and 10 miles southwest of the town of Goliad, being just north of the geophysical structure on which Humble Oil & Refining Co. has taken 10,000 acres and Continental Oil Co. 5,700 acres. In Bee County, Joe Hunter has made location for a 5,000-foot test on his 3,300-acre block, 2½ miles southeast of Beeville, which takes in parts of the Anna Burke Survey. In Refugio County, Atkins and O'Neal will drill a deep test near the Fox lands, near the intersection of Bee, Goliad and Refugio Counties.

Caldwell County

John R. Black and others of Dallas are reported to have taken a block of 7,000 acres in the old Larramore Field, Caldwell County, which has practically been abandoned, and will drill a Trinity sand test. On the Kerr and Edwards County line, Humble Oil & Refining Co. purchased a 10-year paid-up lease on the 65,000-acre Schriener ranch for $1.10 per acre. The ranch is composed of 97 sections, 16 of which are in Edwards County and the balance in Kerr County. In the Sinton Field, San Patricio County, it is reported Plymouth Oil Co. has made appropriations to drill an 8,500-foot test which will be drilled in attempt to test the theory that the field is located on a deep seated salt dome.

Heep Oil Corp. is reported to have leased the southwest 5,700 acres in Porciones 55 and 56, Ancient Jurisdiction of Mier, Starr County, from M. Guerra and son, which extends to the Rio Grande River. To the northeast adjoining the block in the same porciones, United Gas Co. has leased 4,000 acres and has spudded its No. 1 M. Guerra and Son, about 6½ miles northeast of the river near the center of Porcion 55. In the same area, Danvers and Harrison are reported to have about 1,626 acres northeast in Porciones 55 and 56.

Wildcat Operations in Southwest Texas

Week Ending October 13

BANDERA COUNTY

A. P. Crane & Co.'s No. 1 Watson, 988 ft. NE line, 926 ft. SE line, Sec. 71, Antonio Curvier Sur.
Drlg. 1,790 ft.

Plateau Oil Co.'s No. 1, Garrison Sur. No. 506, 1,500 ft. from N and 2,700 ft. from E lines of Sur. (8 mi. SW of Medina).
T.D. 496 ft.; pulling csg. to straighten crooked hole.

BASTROP COUNTY

Champion et al's No. 1 Charles E. Anderson, Antonio Navarro Sur.
No report.

BEE COUNTY

Bill Hindeman's No. 1 Imogene Hall, 2,310 ft. along NW line of S½ of H. W. Fontaine Sur., thence at R/A 1,262 ft.
Rigging up.

Wm. F. Morgan et al's No. 1 Hicks & Hall, Sec. 43 (Normanna area).
Building derrick.

Tuleta Oil Co.'s No. 1 George Ray, 330 ft. from E line, midway between N and S lines of George Ray 204.7-ac. tract in Blanchard Sur., 3 miles SW of Tuleta Field.
Rigging up.

Hewitt et al's No. 1 Ray, ¼ mile S of the North Pettus Field.
T.D. 2,800 ft.; drlg.

Humble O. & R. Co.'s No. 1 Daniel Fox, 7,500 ft. from N line, 3,370 ft. from E line of 1,884-ac. tract in M. Fox Sur.
Drlg. 415 ft.

Mid-Continent Crude Oil Co.'s No. 2 Kimball (Grayburg area).
T.D. 300 ft.; drlg.

Worth Oil Co.'s No. 1 Rutledge, 1,000 ft. from N line and 300 ft. from E line of A. Hadley Sur.
Drlg. 1,733 ft.

BEXAR COUNTY

Lloyd Bender's No. 1 Evans, 1,300 ft. from W line, 200 ft. from N line of 512.7-ac. tract in de la Garza Sur.
No report.

F. T. Chew's No. 1 C. S. Ogden & Brooks, 50 ft. E line, 2,500 ft. from Mitchell Lake, on 1,500-ac. tract, Irrigated farms.
S.D. 350 ft.

M. J. Crouch's No. 3 Hoch, 1,500 ft. N of Medina River, 300 ft. W of E line of 239-ac. tract and 1,250 ft. NE of No. 2 gas well.
S.D. 755 ft.

Dr. Dickens' No. 1 Victor Golla, 150 ft. NW line and 150 ft. NE line of Cardinas No. 25 Sur.
No report.

Jones & Kieffer's No. 1 LaGrane, NW cor. of tract, 210 ft. each way, F. Rolen Sur.
Location.

Linda Oil Co.'s No. 1 Tomasi, Ignacio Peres Sur., 7,694 ft. NE along W line from SW cor., 450 ft. SE of NW line.
T.D. 1,452 ft.; tested sulphur wtr.; P.B. to 943 ft. where it showed oil.

McFee & Briggs' No. 1 Carter, Manuel De Luna No. 3 Sur.
Dropped from report.

McFee & Briggs' No. 1 Lamb, 9,300 ft. from S line, 800 ft. W line, Manvel Deluna Sur. No. 3, Tract A. & B.
No report.

Medina Oil Co.'s No. 1 Hendricks, 700 ft. S line, 400 ft. W line of 103-ac. tract, County Blk. 491, C. A. Yoakum Sur. No. 39.
No report.

Ricker & Auld's No. 1 C. H. Kearney, 2,000 ft. from E line, 300 ft. from S of tank, Villapando Sur. No. 142.
Location.

(Continued on Page 53)

Open New Sandy Lime Area in Winkler District; Activities in North Texas Section Increasing

By L. E. BREDBERG
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Oct. 13.—Another sandy lime area skirting the lime producing Hendricks Field on the east, has been opened in Winkler County, aiding the theory that a succession of pools may run parallel to the lime fields on the west side of the Permian Basin. This new well is northeast of the northernmost end of the Hendricks Field, and 14 miles north of Skelly Oil Co.'s No. 1 Halley, another producer of similar caliber. Whether the two wells will be connected remains to be seen, two tests drilling on intervening acreage.

Sayre Oil Co.'s No. 1 Howe, Section 12, Block 26, logged an oil showing last week at 2,709 feet and another at 2,775 feet. This week the pay was topped at 2,820-25 feet, with an increase in oil showing from 2,873-75 feet, total depth, where it is expected to be completed. During the first 24 hours the well flowed 575 bbls., showing for possibly better than the Halley producer to the south. It may prove larger when cleaned out. J. C. Maxwell of Fort Worth, who is drilling a test 5 miles to the south in Section 37, Block 26, is to drill a west offset immediately, about halfway between the discovery and Wahlenmaier Petroleum Co.'s producer in Section 3, on the Leck ranch, to the northwest. The Maxwell test may prove a link between these two outpost producers.

Sid Richardson's No. 1 Hill, in Section 18, Block B-11, 2 miles northeast of the discovery on the Halley ranch, blew out at 3,132 feet, making considerable gas and some oil, but has a fishing job, two strings of tools in the hole. It is now about 25 feet below the bottom of the Halley well, and has not yet picked up the main pay.

Jeffries and others' No. 1 Brown and Altman, in the SW Section 6, Block B-5, south of Kermit, will be an interesting test, being east of the Walton production and east of the Maxwell test on the Clapp ranch.

Landreth Production Co. and others' wildcat on the Scharbauer lands, Section 20, Block 44, Township 1n, T.&P. Survey, northwest corner of Ector County, is still fishing, with hole bottomed at 4,085 feet where an estimated 25,000,000 feet of gas was struck last week causing a second blowout. It may make a producer, opening another wildcat pool, or proving part of the pool opened by Davidson and others' discovery 5 miles to the northwest.

Another interesting wildcat in the basin, Honolulu Oil Co. and Llano Oil Co.'s No. 1 J. E. Parker, in Section 7, Block A-44, P.S.L. Survey, southeast of the Deep Rock Pool, Andrews County, is expecting a verdict within the next 75 feet. It is running casing with bottom of hole at 4,627 feet. It showed two bailers of oil here. Humble Oil & Refining Co.'s No. 2 Means, Section 6, Block A-19, is also due within a few days. It is 4,225 feet in lime. It is about 1 mile southeast of the company's small discovery well on the same ranch.

Wildcat Tests

Locations were staked for six wildcat tests during the week. Herbert Oil Co. is to drill a Delaware lime test on the E. M. Williams ranch, Section 17, Block 6, H.&G.N. Railway, southeast of the western Ward County producer drilled two years ago by Shipley and others, across the Pecos River in northeastern Reaves County. The other tests are in Borden, Cochran, Culberson, Jeff Davis, Jones and Scurry Counties. The Slaughter ranch, in Cochran County, which has seen the drilling of several wildcats, and good showings of oil and gas in some, is to have another wildcat.

There were 12 completions. Stanolind Oil & Gas Co.'s No. 33 Burleson, in the old McCamey Pool of Upton County, is the first drilled in this area in several years and is making 900 bbls. in eight hours, 10 per cent water and 16 per cent b.s.

Gulf Production Co. completed No. 1 Snodgrass in northern Crane County, making only 40 bbls. per day, swabbing. Total depth is 3,500 feet. It was given two shots. It is in Section 1, Block B-25, 2 miles from another small producer.

West Texas Has 205 Tests

There are now 205 tests in West Texas, shut down for various reasons, or on the active list. Ward County has the greatest activity, with 34 active tests. Ector County has 21 active tests and Howard County 20 tests. Runnels, Winkler and Pecos County, each have 16 tests drilling. There are six Ordovician tests being drilled in widely scattered counties, the most southerly in Sutton County, where the Texas Co. and Hasselman are rigging up standard tools. Two such tests are going down in Reagan, one in Upton County, a Permian lime test is preparing to deepen to the Ordovician in Crane; one is drilling in Glasscock, two are drilling in Schleicher and location for another has been made in that county.

WICHITA FALLS AND RANGER

There were 32 locations staked in the Wichita Falls district and 35 tests completed. Activities are gradually increasing. The only wildcat feature during the week was a test drilled 8 miles north and east of Albany by Reliance Oil & Royalty Co. on the Dillar Brothers ranch, in the south 80 acres of Section 4, B.S. &F. Survey. It logged sand from 502-20 feet, shutting down to shoot, first with 5 quarts, then with 10 quarts. It was completed as a 10-bbl. pumper opening a new shallow producing area. Although two dry holes have been drilled nearby they do not condemn the entire area surrounding the discovery.

Sher-Ritt Oil Co., of Brownwood, has brought in a discovery on the D. D. Scott lands in the William K. Dalton Survey No. 57. It logged saturated lime at 1,895-1,904 feet and was drilled to 1,905 feet, plugging back 1 foot before shooting with 60 quarts. It is flowing 45 bbls. of 40 gravity oil and opens another area in Brown County. Canyon Oil & Gas Corp., of Cross Plains, is taking the oil for its plant at Cross Plains. Location has been made for another test, 300 feet south of the discovery, which is 2,000 feet north and 2,500 feet northwest of dry holes.

Production in the Wichita Falls district averaged 63,410 bbls. per day during the week, still above the daily allowable.

PANHANDLE DISTRICT

There were 13 completions and 15 locations in the Panhandle district.

The wildcat discovery of Humble Oil & Refining Co. on the Logan lands, in Section 1, A. B. Pedigo Survey, 2 miles west of Pringle and about 7½ miles north of production, was drilled 11 feet deeper to 3,230 feet, but did not increase in production. Before deepening it produced 5 bbls. per hour through tubing for 12 hours, only 2 feet in the pay. It is to be drilled deeper, and has around 84 feet to go before reaching sea level. Gravity is 34.6 degrees. Elevation is 3,314 feet.

Regardless of this discovery, Walter Caldwell and Anderson & Kerr of Amarillo have erected a derrick in C NW NE Section 2, Block M-18, D.&P. Survey, about 3 miles east of the direct trend between the discovery and the Stekoll Pool to the south. Humble Oil & Refining Co. holds an 11,000-acre block around the test, the first the company drilled in Hutchinson County.

Collingsworth County had a dry gasser in semiwildcat territory. Milton and others' No. 1 A. B. Franks, in Section B, Block 23, H.&G.N. Survey, made 10,000,000 feet from granite wash topped at 2,515 feet. Deeper drilling took the well into salt water at 2,520-25 feet, which will necessitate plugging back.

Production in the district averaged 53,430 bbls. per day. Nearly all of the newly completed wells were put on pump this week before completing.

Wildcat Operations in West Texas

Week Ending October 13

ANDREWS COUNTY

R. S. Bond et al's No. 1 McCarley, 1,320 ft. from N and W, Sec. 29, Blk. 3, P.S.L. Sur.
T.D. 1,825 ft.; reaming.

Honolulu and Llano Oil Co.'s No. 1 J. E. Parker, 1,320 ft. from S line and 1,470 ft. from W line of Sec. 7, Blk. A-44, P.S.L. Sur.
Drlg. 4,567 ft.

Humble Oil & Ref. Co.'s No. 1 B. S. Walker, 660 ft. from E line and 660 ft. from S line of Sec. 6, Blk. A-43, P.S.L. Sur.
Drlg. 3,670 ft.

Humble Oil & Ref. Co.'s No. 2 Means, 1,980 ft. from S and 1,487 ft. from W, Sec. 6, Blk. A-19.
Drlg. 4,180 ft.

BORDEN COUNTY

Moore Bros.' No. 1 Clayton & Johnson, 1,320 ft. N and E, Sec. 29, Blk. 32, Twp. 4n, T.&P. Sur.
Location.

BREWSTER COUNTY

Joiner et al's No. 1 McIntyre, 353 ft. from S, 2,390 ft. from E of Sec. 31, Blk. 352, W. M. Mitchell Sur.
S. D. 2,100 ft.

COCHRAN COUNTY

West Texas Development Co.'s No. 1 Slaughter, C of Lobaur, Sec. 53, Blk. 194, Randall Co. School Lands.
Derrick.

COKE COUNTY

Wm. Hooper's No. 1 Gaston, 240 ft. from S line and 654 ft. from W line of Joseph Sur. No. 11.
S.D. 2,560 ft.

CRANE COUNTY

Continental Oil Co.'s No. 1 M. Dawson, 1,320 ft. from N and 440 ft. from E, Sec. 80, Blk. X.
T.P. 2,358 ft.; drlg. 2,372 ft.

Loffland Bros. et al's No. 1 Tubbs.
Preparing to deepen; T.D. 4,510 ft.

Strauss' No. 1 Phelps et al, 2,113 ft. from N and 713 ft. from NW Sec. 13, Blk. 31, H.&T.C. Sur.
T.D. 300 ft.; set csg.

CULBERSON COUNTY

Anderson-Pritchard Oil Corp., Magnolia Pet. Co. et al's No. 1 Bordera, 1,255 ft. N and 2,305 ft. from W, Sec. 34, Blk. 69, P.S.L. Sur.
Fishing 423 ft.

Miller Bros.' No. 1 fee, 1,980 ft. from N and 660 ft. from E line of Sec. 21, Blk. 97, P.S.L. Sur.
Drlg. 1,690 ft.

World et al's No. 1 Hall, 250 ft. from S and 85 ft. from E, Sec. 11, Blk. 54½, 16 miles N of Van Horn, P.S.L. Sur.
Drlg. 100 ft.

DAWSON COUNTY

Ray Albaugh et al's No. 1 John Robinson, 1,320 ft. from N line, 1,320 ft. from W line of Sec. 46, Blk. M, E.L.&R.R. Sur.
S.D. 2,957 ft.

ECTOR COUNTY

Black et al's No. 1 Connell, 330 ft. from S and 2,310 ft. from W, Sec. 1, Blk. B-16, P.S.L. Sur.
Machine.

Harrison et al's No. 3 Addis, 1,650 ft. from N line and 2,200 ft. from W line of Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur.
Drlg. 800 ft.

Landreth Prod. Co.'s No. 1 Johnson, 440 ft. from N and W, Sec. 47, Blk. 43, Twp. 1s, T.&P. Sur.
Spudded.

Landreth Prod. Co.'s No. 2-A Texas Pacific Land Trust, 441 ft. from N line and 440 ft. from W line of Sec. 3, Blk. 43, Twp. 1s, T.&P. Sur.
T.D. 4,275 ft.; plugged back 4,248 ft.; Making 10 bbls. per day.

Landreth Prod. Co.'s No. 1 Clarence Scharbauer, 660 ft. from S and E. lines of Sec. 20, Blk. 44, Twp. 1n, T.&P. Sur.
T.D. 4,082 ft.; gas killed to drill ahead.

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COMPLETIONS IN WEST TEXAS

Crane County

Gulf Production Co.'s No. 1 Snodgrass, total depth 3,500 feet, shot 300 quarts from 3,376-3,497 feet and 210 quarts from 3,170-3,250 feet, initial production 40 bbls. per day, swabbing.

Ector County

Stanolind Oil & Gas Co.'s No. 9 Cowden, top pay 4,160 feet, shot 340 quarts from 4,155-4,248 feet, initial production 1,079 bbls. per day. Shell Petroleum Corp.'s No. 3 Jones, top pay 3,619 feet, total depth 3,695 feet, shot 230 quarts from 3,592-3,686 feet, initial production 571 bbls. per day.

Howard County

Phillips Petroleum Co.'s No. 1 Lane, top pay 2,485 feet, total depth 2,816 feet, shot 310 quarts from 2,734-2,806 feet, initial production 150 bbls. per day. Humble Oil & Refining Co.'s No. 6 Settles, top pay 2,240 feet, total depth 2,336 feet, initial production 103 bbls. in seven hours, pumping and flowing.

Pecos County

Cardinal Oil Co.'s No. 2 Tippett, abandoned location. California Co.'s No. 2 Reid, top pay 1,165 feet, total depth 1,327 feet, initial production 1,049 bbls. per hour.

Upton County

Stanolind Oil Co.'s No. 33 Burleson, total depth 2,057 feet, initial production 900 bbls. in eight hours, 10 per cent water and 16 per cent b.s. Texas Pacific Coal & Oil Co. and Humble Oil & Refining Co.'s No. 4-B Sherk, top pay 2,651 feet, total depth 2,620 feet, initial production 118 bbls.

Ward County

Gulf Production Co.'s No. 51 O'Brien, top pay 2,603 feet, total depth 2,765 feet, shot 400 quarts from 2,623-2,760 feet, initial production 150 bbls. in six hours. California Co.'s No. 12 Durgin, top pay 2,348 feet, total depth 2,543 feet, initial production 269 bbls. per day.

Winkler County

Richardson's No. 2-B Tidal-Scarborough, total depth 3,055 feet, initial production 67 bbls. per day.

WICHITA FALLS DISTRICT

Archer County

A. L. M. Co.'s No. 1 Wills, dry and abandoned 603 feet. Anderson's No. 5 Justice, top pay 1,075 feet, total depth 1,084 feet, initial production 12 bbls. Bridwell Oil Co.'s No. 15-C Oil Investment Co., dry and abandoned 1,457 feet.

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Two Trinity Sand Tests Fail in East Texas District; Eight More Areas Out of Potential List

By L. E. BREDBERG

DALLAS, Tex., Oct. 15.—Two Trinity sand tests were written off in East Texas this week when Peyton Brothers of Mexia, abandoned their No. 1 Steubenrach, in the Pedro Varela Survey, on the west side of the Mexia Fault line field in Limestone County. It was given up as dry at 6,100 feet after showing water. It had good showings of oil and gas, but they failed to materialize. This makes the second Trinity sand test abandoned in this area, E. L. Smith Oil Co. of Mexia, having abandoned one several years ago near this last dry hole.

Wheelock and Collins, of Corsicana, have also given up their Trinity sand test on the Cerf lands, in the James Smith Survey, on the west side of the Corsicana-Powell Pool in Navarro County. It went to 6,500 feet, failing to get any showings of consequence. Another Trinity sand test is rumored for this area, probably within the Corsicana Pool.

There were only two wildcat locations, and one semiwildcat location staked in the East Texas district during the week. One of these is now shut down at 1,650 feet, L. P. Davidson and others' No. 1 Childs, in the J. Nelson Survey, 2 miles northeast of Mart, in Freestone County. The semiwildcat is to be drilled by the Trinity State Oil Co. of Fort Worth, 1,870 feet north and 1,200 feet west of the southwest corner of the Tide Water Oil Co. and Texas Seaboard Oil Co.'s Sullenberger lease, in the William Snyder Survey. The location falls in the Trinity River bed on which this company has the lease west of the Cayuga Field, northwest Anderson County. There is only one producer on the Sullenberger lease, No. 2 location having been abandoned 10 days ago.

Gulf Production Co. has moved in material on the Davey and Royall lands, which fall in a fair sized block held by the company. Location is on a 172-acre tract in the M. Rogers Survey, about 8 miles north of Slocum. The nearest test was drilled by Humble Oil & Refining Co. seven years ago, one-half mile northwest of the proposed test. That test topped the Austin chalk at 5,059 feet and was abandoned at 5,080 feet. Expiration of leases early next year is causing the present test.

A showing of 16 gallons of oil per day in Eureka Drilling Co.'s No. 1 Davis, in Block 18, Zara League, 8 miles north of Marlin, in Falls County, has caused little interest in this wildcat drilling at 1,175 feet.

Eight Areas Erased

There were eight more areas erased from the potential producing sectors in East Texas this week, Anderson, Cherokee, Leon, Morris and Van Zandt Counties each having one, while Upshur had three abandoned. Chief among the dry holes was Byrd-Frost, Inc.'s No. 1 Burrows, near Slocum, in southern Anderson County, second test in this area. Total depth is 5,632 feet. Zilkey and McCulloch and Sinclair Prairie Oil Co.'s No. 1 Bradford, south of Rusk, in Cherokee County, was given up at 5,177 feet. Another wildcat, a short distance southwest of the Long Lake Field of southwestern Anderson County, was Killough and Tucker's No. 1 Young, in Leon County. It was dry at 4,002 feet, limiting the Long Lake Field to the southwest.

Alford and others are drilling a 6,000-foot test on the west side of production in Smith County, near Arp, expecting production in the sand in the Georgetown lime. The nearest producer is 3 miles east, that well making considerable water from the Woodbine sand. The Alford test logged the Woodbine at 3,920 feet and is drilling below 3,975 feet.

Snyder and others' No. 1 Holmes, in the A. N. McKnight Survey, 1½ miles southeast of Hawkins, in Wood County, looks like another failure. It cored white sand from 4,990-5,000 feet with no showings of oil and gas.

EAST TEXAS FIELD

Bottom hole pressure reports on October 11, covering a 45-day period, show a drop in average weighted bottom hole pressure of only 3 pounds, bringing the average down to 1,225 feet, a negligible drop in view of the volume of oil taken out during that time, about 24,000,000 or 25,000,000 bbls.., with the amount of "hot" oil estimated. There is considerable activity in the Gladewater townsite, on the western edge of Gregg County, in working over wells and plugging back to shut off salt water. There is no way to check the quantity of water wells are making in this area, but this activity indicates the Gladewater townsite wells and wells in this immediate area will soon reach the pumping or abandonment stage. There are 30 refineries in and around the town, all supplied from wells in the area.

Permits for drilling exceptions to the Railroad Commission's spacing rules are apparently easy to obtain. One 2½-acre lease in Gregg County contains six wells, lots in the townsites often containing two. One front yard in Kilgore contains two wells, spaced 50 feet apart.

Leonard Petroleum Co. has sold its one-half interest in the H. G. Corbin lease, in the Edwards Survey, Gregg County, containing 15 acres and two wells, with one undrilled location, receiving $62,000 for its half, part in cash and part in notes, from Campbell and McDonald of Dallas. Stiff prices, but not quite as high, have been paid for many small leases, major units usually being the purchasers.

EAST TEXAS COMPLETIONS

Anderson County

Byrd-Frost, Inc., and others' No. 1 Burrows, dry and abandoned at 5,632 feet. Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 2 Wortham, top pay 4,055 feet, total depth 4,078 feet, initial production 96 bbls. in 20 hours through one-seventh inch choke.

Cherokee County

Zilkey and McCulloch and others' No. 1 Bradford, dry and abandoned at 5,177 feet.

Leon County

Killough and Tucker's No. 1 Young, dry and abandoned at 5,543 feet.

Morris County

Ginsberg Brothers' No. 1 Hall, dry and abandoned at 4,002 feet.

Upshur County

Hodges' No. 1 Floyd, dry and abandoned at 3,764 feet. Lanier and Moore's No. 1 Vaughn, dry and abandoned at 1,042 feet. Joe Papadakis' No. 1 Reynolds, dry and abandoned at 3,668 feet.

Van Zandt County

Brown's No. 1 Bank of Edgewood, dry and abandoned at 4,515 feet. Humble Oil & Refining Co.'s No. 6 Fowler, location abandoned. Pure Oil Co.'s No. 2 Gilbert, dry and abandoned at 2,955 feet.

East Central Texas Wildcats

Week Ending October 13

ANDERSON COUNTY

Gulf Prod. Co.'s No. 1 Dovey & Royall, 330 ft. from NE and NW of 172-ac. tract, M. Rogers Sur.
Material.

J. W. Luttes' No. 1 C. McKee, 357 ft. from S line, 340 ft. from W line of 100-ac. tract W. F. Pool Sur., SE of Frankston Sur.
Derrick.

Trinity State Oil Co.'s No. 1 Trinity River, 1,870 ft. N and 1,200 ft. W of SW cor. of Sullenberger lands, Wm. Snyder Sur.
Material.

BOWIE COUNTY

Tex-Ark. Oil Co.'s No. 1 Hamilton Estate, 660 ft. E and 350 ft. N lines, J. Milan Sur., 4 miles S of Red River.
Derrick.

CHEROKEE COUNTY

H. L. Hunt Production Co.'s No. 1 Powell Lumber Co., 467 ft. from S and W lines of 52-ac. tract, 1 mile E and one-quarter mile N of discovery well, D. W. McNab Sur.
Location.

Jackson Oil & Gas Co.'s No. 1 H. D. Henderson, 660 ft. from N and W line of 40-ac. tract out of Tankersley 104-ac. tract, 5 miles NE of Jacksonville on W side of railroad, J. Pineda Sur.
T.D. 753 ft.; to set csg.

Guy Jameson et al's No. 1 Mullineaux, con. 20-ac. tract out of NW cor. of SE of T. M. Garrett Sur., 5 miles NW of Maydell.
Rigged up.

South Gulf Oil Co.'s No. 1 Joe Bailey, center 164-ac. tract, 4 miles NE of Ponta, L. R. Rhodes Sur., Abstract No. 734.
S.D. 4,397 ft.; to set csg.

E. M. Thomason et al's No. 1 Addis Estate, 250 ft. S of survey and 150 ft. E of railroad, J. T. Jones Sur., 6 miles NW Alto.
Drlg. 220 ft.

Wilson Stubbs Oil Co.'s No. 1 Rowborta, 450 ft. from S line, 150 ft. from W line of 100-ac. tract, 2 miles SW of Jacksonville, J. D. Wolfin Sur.
S.D. 1,550 ft.

ELLIS COUNTY

Beckner-Finley et al's No. 1 Coker, 2,900 varas along S line of grant from river and 1,700 varas N at R/A, R. De La Pena Sur.
Shut down.

FALLS COUNTY

Eureka Drlg. Co.'s No. 1 L. Davis, 150 ft. N of Blk. 19, and 1,970 ft. W of Blk. 18, Zora League, 8 miles N of Marlin.
16 gallons oil per day at 1,020 ft.; drlg. 1,150 ft.

FANNIN COUNTY

L. Kean et al's No. 1 L. M. Boyd, 300 ft. from E line and 200 ft. from N line of survey, W. Hunt Sur.
S.D. 2,505 ft.

FREESTONE COUNTY

Burris' No. 1 R. J. Johnson, NE cor. of a 95-5-ac. tract, W. M. C. Jones Sur.
S.D. 1,000 ft.

L. P. Davidson et al's No. 1 Childs, 150 ft. out of SW cor. of S tract in J. Nelson Sur., 2 miles NE of Mart.
S.D. 1,650 ft.

Hailey-Young's No. 1 Cochran, 400 ft. N and W lines, D. Bullock Sur., 1 mile SE of Lima.
Location.

E. L. Smith et al's No. 1 Kemple, 450 ft. out of NE cor. A. G. Smith Sur., 4¼ miles S of Dew.
Spudded.

J. E. Wilburn's No. 1 S. McShan, 4,000 ft. from NWL and 5,000 ft. from NEL of survey, G. Diaz Sur.
S.D. 171 ft.

HENDERSON COUNTY

Campbell and Chamberlain's No. 1 R. Ansley, 1,724 ft. W and 300 ft. S of SE cor. of M. Matthews Sur., N. H. T. Thompson Sur.
S.D. 2,650 ft.

Cosden Oil Co.'s No. 1 Hunt & Miller, 990 ft. from N and 1,340 ft. from W lines of J. D. Hays Sur., 11 miles S of Chandler.
Drlg. 750 ft.

Crosby and Pulp's No. 1 M. T. Dobbs, NW cor. of east Dobbs 100-ac. tract, 4 miles E of Malahoff and S of Railroad, George Aldrick Sur.
S.D. 3,118 ft.

HOPKINS COUNTY

D. A. Hale et al's No. 1 L. M. Hall, 200 ft. from N and E lines of 70a-c. tract, 1 mile SE of Miller Gros, A. Caro Sur.
S.D. 640 ft.

HUNT COUNTY

G. S. & S. Co.'s No. 1 O. Popper.
Drlg. 2,753 ft.

J. C. Half's No. 1 Parrish, C of 100-ac. tract

(Continued on Page 53)

Skinner's No. 1 Cade, dry and abandoned at 1,265 feet.

EAST TEXAS COMPLETIONS

Gregg County

Lacy's No. 4 Davis, top pay 3,658 feet, total depth 3,583 feet, initial production 100 bbls. per hour through open tubing. Arkansas Fuel Oil Co.'s No. 9 Whittaker, top pay 3,517 feet, total depth 3,542 feet, initial production 32 bbls. in 15 minutes. Atlantic Oil Producing Co.'s No. 68 Judge, top pay 3,514 feet, total depth 3,539 feet, initial production 110 bbls. per hour. C. & G. Oil Co.'s No. 5 Bumpass, top pay 3,507 feet, total depth 3,527 feet, initial production 76 bbls. Fenlaw's No. 1 Stone, dry and abandoned at 3,710 feet. Gulf Production Co.'s No. 1 Bozeman, top pay 3,551 feet, total depth 3,590 feet, initial production 60 bbls. Humble Oil & Refining Co.'s No. 10 Johson, top pay 3,632 feet, total depth 3,674 feet, initial production 60 bbls.; No. 11 Killingsworth, total depth 3,645 feet, initial production 98 bbls.

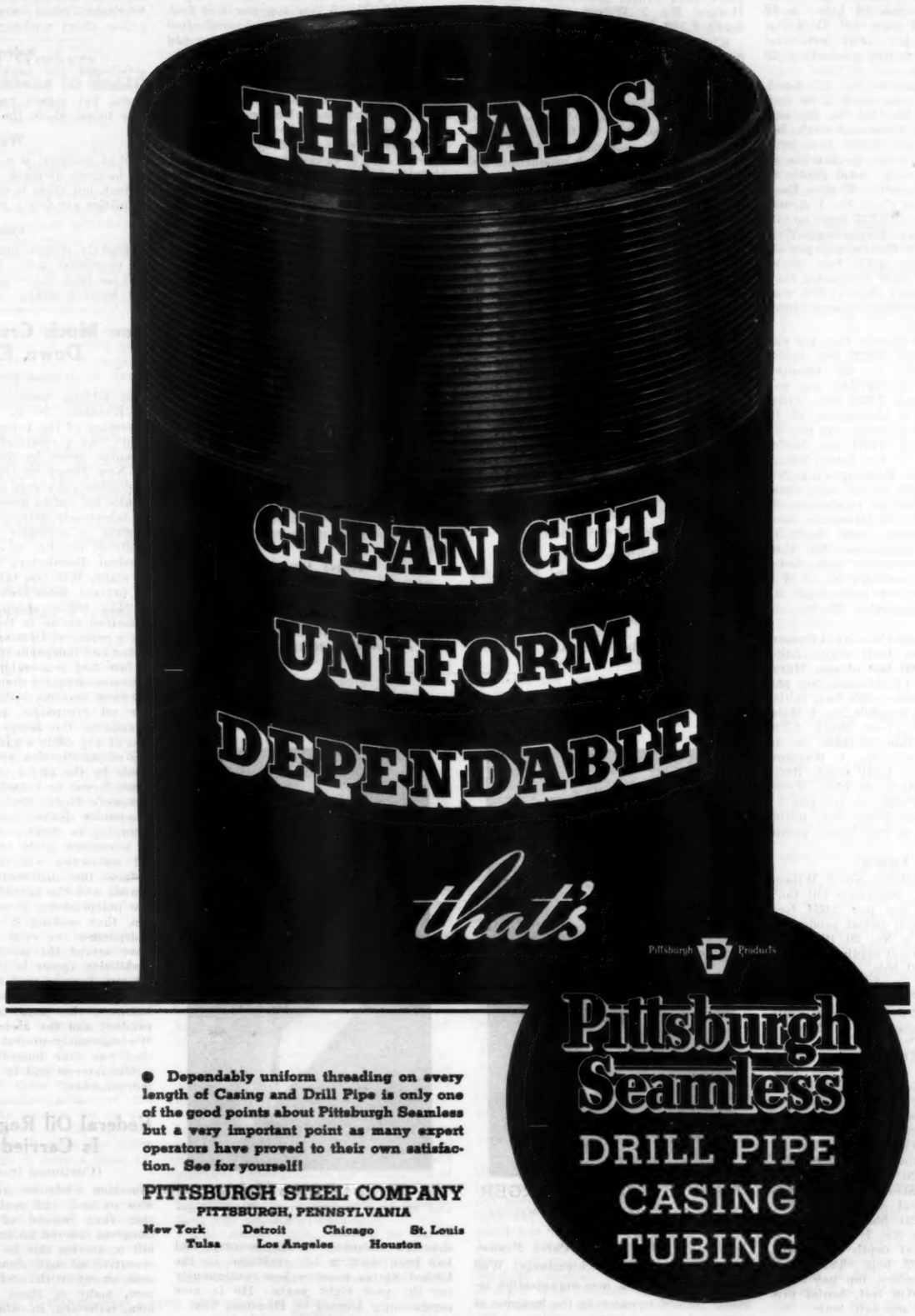
Magnolia Petroleum Co.'s No. 5 Sparks, top pay 3,669 feet, total depth 3,681 feet, initial production 60 bbls. Sun Oil Co.'s No. 10 McKinley, top pay 3,651 feet, total depth 3,673 feet, initial production 40 bbls. T. W. M. Oil Co.'s No. 1-A Sabine River Bed, total depth 3,580 feet, initial production 15 bbls. in 45 minutes. Yount Lee Oil Co.'s No. 8 Adrian-McCrary, top pay 3,469 feet, total depth 3,489 feet, initial production 59 bbls. through eleven-sixteenths inch choke; No. 13 Hopkins, top pay 3,517 feet, total depth 3,537 feet, initial production 60 bbls.; No. 8-A McKinley, top pay 3,537 feet, total depth 3,557 feet, initial production 61 bbls. through eleven-sixteenths inch choke.

Adams and Lyle's No. 10 Howard, top pay 3,620 feet, total depth 3,625 feet, initial production 20 bbls. in 20 minutes. Christian and others' No. 1 fee, total depth 3,651 feet, initial production 75 bbls. Gulf Production Co.'s No. 31 Spearks, top pay 3,548 feet, total depth 3,578 feet, initial production 60 bbls.; No. 15 Still, top pay 3,504 feet, total depth 3,552 feet, initial production 50 bbls. Hawkeye Petroleum Co.'s No. 5 Smith, top pay 3,585 feet, total depth 3,625 feet, initial production 323 bbls. in two hours. Humble Oil & Refining Co.'s No. 61-B Laird, total depth 3,640 feet, initial production 47 bbls. Illinois Oil Co.'s No. 4 Bell, top pay 3,700 feet, total depth 3,703 feet, initial production 20 bbls. Magnolia Petroleum Co.'s No. 16 Hicks, top pay 3,648 feet, total depth 3,651 feet, initial production 88 bbls.

Midfield Oil Co.'s No. 2 McComic, total depth 3,765 feet, initial production 60 bbls. Nelson and others' No. 1 Negro Lodge, total depth 3,536 feet, initial production 20 bbls. Pendergrast's No. 2 Beall, location abandoned. Shell Petroleum Corp.'s No. 12 Willoughby, total depth 3,590 feet, initial production 35 bbls. in one-half hour. Sinclair Prairie Oil Co.'s No. 17 Lawther, total depth 3,581 feet, initial production 60 bbls. in two hours, swabbing. Texas Co.'s No. 29 Cole, top pay 3,515 feet, total depth 3,556 feet, initial production 75 bbls.; No. 30 Cole, top pay 3,520 feet, total depth 3,550 feet, initial production 95 bbls. Weaver-Crim's No. 6 Peterson, top pay 3,613 feet, total depth 3,637 feet, initial production 30 bbls. in 15 minutes.

Rusk County

Royal Petroleum Co.'s No. 2 Mayfield, total depth 3,732 feet, initial production 20 bbls. in one hour, swabbing. Humble Oil & Refining Co.'s No. 132 Crim, total



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depth 3,698 feet, initial production 80 bbls.; No. 136 Crim, top pay 3,589 feet, total depth 3,602 feet, initial production 97 bbls.; No. 139 Crim, total depth 3,606 feet, initial production 112 bbls.; No. 25-B Sexton, total depth 3,719 feet, initial production 41 bbls. through eleven-sixteenths inch choke. Roberts and others' No. 2-D Brightwell, total depth 3,655 feet, initial production 30 bbls. in 15 minutes. Sinclair Prairie Oil Co.'s No. 8-B Kennedy, top pay 3,607 feet, total depth 3,685 feet, initial production 20 bbls. in 30 minutes.

Snowden-McSweeney's No. 17 Ladd, top pay 3,572 feet, total depth 3,590 feet, initial production 35 bbls. in 30 minutes. Atlantic Oil Producing Co.'s No. 30 Kennedy, top pay 3,576 feet, total depth 3,634 feet, initial production 42 bbls.; No. 33 Kennedy, total depth 3,644 feet, initial production 35 bbls. Eastern Texas Petroleum Co.'s No. 1 Arnold and others, total depth 3,675 feet; no oil; 1,000,000 feet of gas. Gant-Garvin-Wegner's No. 12 Moore Estate, top pay 3,528 feet, total depth 3,570 feet, initial production 35 bbls. Gulf Production Co.'s No. 12 Grissom, total depth 3,689 feet, initial production 60 bbls. through three-quarters inch choke.

Hadaway's No. 3 Church Lot, top pay 3,780 feet, total depth 3,829 feet, initial production 30 bbls. in 20 minutes. Haynes Oil Co.'s No. 14 Lee, top pay 3,602 feet, total depth 3,633 feet, initial production 30 bbls. in 15 minutes. H. B. W. Oil Co.'s No. 9 Redwine, top pay 3,535 feet, total depth 3,570 feet, initial production 20 bbls. in two hours, pumping. Humble Oil & Refining Co.'s No. 6-B Silvey, top pay 3,743 feet, total depth 3,780 feet, initial production 86 bbls. through eleven-sixteenths inch choke; No. 43-A Silvey, total depth 3,737 feet, initial production 85 bbls. through eleven-sixteenths inch choke. Jackson-Wise and Snedden's No. 7 Wilson, top pay 3,624 feet, total depth 3,655 feet, initial production 25 bbls. in 15 minutes.

Magnolia Petroleum Co.'s No. 1 Spence, top pay 3,650 feet, total depth 3,662 feet, no oil, 3,000,000 feet of gas. Marathon Oil Co.'s No. 77 Grissom, top pay 3,633 feet, total depth 3,635 feet, initial production 72 bbls. Yandle's No. 1 Hale, top pay 3,640 feet, total depth 3,726 feet, initial production 25 bbls. in 45 minutes. Constantine's No. 1 Watkins, top pay 3,589 feet, total depth 3,624 feet, initial production 40 bbls. Tysco Oil Co.'s No. 1-C Frederick, top pay 3,604 feet, total depth 3,685 feet, initial production 20 bbls. in two hours, pumping.

Smith County

McCulloch and Zilkey's No. 3 Wilson, location abandoned. Marathon Oil Co.'s No. 11 Thompson, top pay 3,634 feet, total depth 3,639 feet, initial production 88 bbls. Texas Co.'s No. 20 Blackwell, top pay 3,665 feet, total depth 3,687 feet, initial production 70 bbls.

Upshur County

Humphrey's No. 2 Johnson, total depth 3,638 feet, initial production 30 bbls. on air lift. Magnolia Petroleum Co.'s No. 3 Christian, top pay 3,676 feet, total depth 3,690 feet, initial production 88 bbls. Margay Oil Co.'s No. 1 Crain Brothers, dry and abandoned at 3,628 feet. Oil, Inc.'s No. 7 Sanders, total depth 3,592 feet, initial production 40 bbls. in 1½ hours. Shasta Oil Co.'s No. 3 Florence, top pay 3,583 feet, total depth 3,585 feet, initial production 20 bbls. of fluid, 50 per cent salt water. Stroube and Stroube's No. 18 Mackey, total depth 3,645 feet, initial production 20 bbls. in one-half hour. Sun Oil Co.'s No. 1 Johnson, top pay 3,627 feet, total depth 3,630 feet, initial production 25 bbls. Tangipohoa Oil Co.'s No. 3 Sanders, top pay 3,630 feet, total depth 3,646 feet, initial production 40 bbls. in one-half hour.

West Texas Fields

(Continued from Page 47)

Burns' No. 20-A Ferguson, dry and abandoned 684 feet. Continental Oil Co.'s No. 6-A Logan, dry and abandoned 1,185 feet. Continental and Cullum's No. 16 Falls County, top pay 1,114 feet, total depth 1,120 feet, initial production 50 bbls. Golding and Cochran's No. 14 Lauster, dry and abandoned 1,340 feet. Gray Drilling Co.'s No. 9 Ferguson, dry and abandoned 667 feet. Hamilton's No. 22 Coffield, dry and abandoned 1,324 feet; No. 19 Price, top pay 1,142 feet, total depth 1,151 feet, initial production 125 bbls. Hodges' No. 2 Wilson, dry and abandoned 1,773 feet.

Kleiner's No. 6 Andrews, top pay 965 feet, total depth 971 feet, initial production 150 bbls.; No. 7 Andrews, top pay 968 feet, total depth 977 feet, initial production 300 bbls.; No. 8 Andrews, top pay 958 feet, total depth 966 feet, initial production 150 bbls. W. E. Maxson, Jr.'s No. 27-B Green, top pay 1,076 feet, total depth 1,095 feet, initial production 150 bbls. McLaughlin's No. 2 Garrett, dry and abandoned 740 feet. Pace's No. 10 Abercrombie, top pay 1,143 feet, total depth 1,150 feet, initial production 30 bbls. Perkins and Cullum's No. 13-B Falls County, top pay 1,115 feet, total depth 1,130 feet, initial production 300 bbls. Rathke Oil Co.'s No. 2-B Benson, dry and abandoned 977 feet. Staniforth and Ray's No. 11 Wilson, top pay 1,597 feet, total depth 1,601 feet, initial production 325 bbls. Banner Oil Co.'s No. 12-E Aber, top pay 1,126 feet, total depth 1,142 feet, initial production 25 bbls.

Jack County

Barton's No. 1 Henderson, dry and abandoned at 765 feet. Robert Oil Co.'s No. 1 Loving, dry and abandoned at 3,407 feet.

Montague County

Benton and Holmes' No. 2-B Davenport, top pay 1,692 feet, total depth 1,705 feet, initial production 150 bbls.

Wichita County

Burns' No. 3-D Allen and Kemp, top pay 461 feet, total depth 472 feet, initial production 10 bbls.; No. 4-D Allen and Kemp, dry and abandoned at 1,650 feet. Panhandle Refining Co.'s No. 1-A First National Bank, dry and abandoned at 1,004 feet. Petroleum Producers Co.'s No. 45 Allen & Kemp, dry and abandoned at 752 feet.

Wilbarger County

Nichols and others' No. 1 Waggoner, abandoned location.

Young County

Honea's No. 5 fee, top pay 910 feet, total depth 915 feet, initial production 20 bbls. Long's No. 1 Williams, dry and abandoned at 4,002 feet. Magnolia Petroleum Co.'s No. 8 Johnson, top pay 620 feet, total depth 628 feet, initial production 3 bbls. Texas Co.'s No. 1-B Leberman, dry and abandoned at 1,037 feet. Wooten and Reed's No. 3 Reed, dry and abandoned at 597 feet. Wright and others' No. 1 Courtney heirs, dry and abandoned at 950 feet.

Indications of Firmer Market in Chicago Area

(Continued from Page 41)

movement East is preventing completed collapse of that market and is holding kerosene prices in better market position than gasoline. Farm demand is spotty and inconclusive. Prices are unchanged to a shade easier.

Heating Oils

Heating oils are suffering from increased offerings and the trend in price is easier. Distributors are now inclined to hold aloof from participation in the market, whereas a month ago they were active purchasers and the supplies were limited so far as the open market was concerned. This situation was anticipated by a good many. Weather has been too mild for a good movement in many regions.

Heavy Products

The trade is paying no great amount of attention to the heavy fuels and gas oils, which are tending somewhat easier. In particular industrial gas oil has been in a considerable sinking spell, at steadily lower prices. Industrial demand has been distinctly disappointing.

Lubricants

With the cold season approaching, motor oil sales have been stimulated by crankcase changes, but this has not yet had much effect on the general lubricating oil market here. Representative lubricant items are slow and dull, prices about unchanged.

Solvents

Solvents and naphthas continue dull. Demand has lessened a little here and there, but sellers report they are still able to get about the same prices.

Wax

Wax business is a little slower, prices unchanged. Demand is not quite so insistent, but there is still fair equilibrium. Inquiries are fairly good.

Coke

Slightly firmer prices have developed in petroleum coke, business being fair and the tone of the market for this product being healthy.

Too Much Crude Puts Down Eastern Prices

(Continued from Page 23)

tant jobbing concern with headquarters at Elizabeth, N. J., who in a wire to Secretary of the Interior Ickes last week said: "As a result of the second cut in gasoline prices by the Standard Oil Co. of New Jersey in the New Jersey area and other price cuts by other major companies the entire gasoline price structure so laboriously developed over the last 18 months is seriously threatened and in addition the life of thousands of independent distributors in this territory is at stake. Will you take immediate action to prevent these inevitable results?

"The whole gasoline price structure remained stable in the New Jersey area for a period of 18 months permitting both major and independent companies to make a fair and reasonable profit. This took into consideration the differential existing between trademarked brands of the major oil companies and untrademarked brands of the independents, a differential of 1½ cents a gallon. Without warning or justification price reductions were made by the major oil companies which were forced to reduce their prices to a nonprofit basis. This is what the major companies desired because they are attempting to destroy our very existence. It is current in the trade that the major oil companies will attempt to further reduce the differential between their brands and the untrademarked brands of the independents to one-half cent a gallon, thus making it impossible for the independent to exist. The independents have served the public well both as a stabilizing factor in the whole economic oil structure as well as in the preservation of the very essence of American business, the maintenance of the independent and the exclusion of monopoly. We vigorously protest to you requesting that you take immediate action in the public interest and in the interest of the independents."

Federal Oil Regulation Is Carried to Extremes

(Continued from Page 45)

proration violators and code offenders was so loud and zealous in its opposition that instead of passing the bill Congress ordered an investigation. If the bill is unwise this is one time the conservative oil man should credit his business enemy with saving the day. But, now, many of those same conservative men, reflecting, in calmer moments, upon the possibilities involved, have let their natural aversion to governmental meddling with business lead them into a conviction that the National Government should not do more than provide for a state compact for co-operative effort to control crude production. Were these men right last May, or are they right

Prof. C. Schlumberger Visits Gulf Coast

PROF. C. SCHLUMBERGER
President, Schlumberger Well Surveying Corp.

E. G. LEONARDON
Vice President and Treasurer, Schlumberger Well Surveying Corp.

Prof. C. Schlumberger, Paris, France, and president of the "Schlumberger Well Surveying Corp.," a new organization recently formed to carry on the business of well surveying using the well known electrical prospecting methods developed by C. Schlumberger and his brother, M. Schlumberger, vice president, was recently a visitor to the new Gulf Coast office of the company located in Houston, Tex.

E. G. Leonardon, vice president and treasurer, is in charge of the business of this new company in this country, and has been making his residence in the United States more or less continuously for the past eight years. He is now permanently located in Houston, Tex.

The application of this method of prospecting to drilled holes before casing is run is proving of much assistance to drilling contractors, production superintendents and engineers in determining underground conditions and checking logs prepared by the geologists from cores and cuttings from the well.

now? Echo answers, "Were they right last May, or are they right now?"

The members of this organization of engineers, like many other people, will watch with eager interest the outcome of debates that have gone on before the House Committee investigating the conditions and needs of the industry and then to see what Congress will do about it. The question is too important to be hastily decided.

Stripper Well Workers Tell Grievances to Board

(Continued from Page 14)

of the association was violating the stripper well provision.

Mr. Fell testified that Ray M. Collins, former state oil umpire, estimated that the 54,000 Oklahoma stripper wells in the next 20 years would produce 540,000,000 bbls. of oil, while the 3,580 flush wells would only produce 425,000,000 bbls. in so long as they might produce.

Fell insisted that any program which would make labor costs too high for the economical operation of these wells would result in their wholesale abandonment.

"Any policy resulting in abandonment of many of these wells of settled production means complete loss of employment to these workers, many of whom have spent their lifetime at this occupation and have no training for other forms of employment."

Testimony of Ray M. Collins, of Tulsa; William Bell, president of the Illinois-Indiana Petroleum Association, and others testified as to the serious financial conditions under which stripper well owners are operating.

Dr. George W. Stocking, chairman of the Petroleum Labor Policy Board, presided at the meetings.

Study of Variations in Reservoir Pressure

(Continued from Page 13)

the expansibility of the water in the Woodbine formation is a little over 10 times the actual value for pure water.

Using the values for the constants as given, the variations in the average reservoir pressure of the East Texas Field have been calculated over the very irregular production history of the field. The results are shown graphically as the dashed line in Figure 1, while the actually observed values for the average pressures are the plotted points. It is observed that a close check with the actual data has been obtained. In particular, it is pointed out that the several increases in pressure, observed during periods of shutdown or following reduction in the production rate, have been checked by the calculation.

The fact that it has been possible to take care of all irregularities by making an adjustment in only one constant is remarkable, particularly when it is realized that the adjusted value used instead of the expansibility of pure water is not at all unreasonable. It is known that the Woodbine water contains dissolved or occluded gases. Although their exact effect has not been determined, undoubtedly such associated gases would greatly augment the expansive power of the water. In a similar manner the oil and gas fields, scattered throughout the Woodbine basin, would cause the water to behave as though it were a more expansible fluid.

In view of the good check with the actual data and in order to show more clearly the influence of the production rate upon the average reservoir pressure, the changes in the average pressure under several assumed rates of production have been calculated for the year August, 1934, to August, 1935. These results are also given in Figure 1 for production rates of 0; 200,000; 400,000; 600,000; 800,000 and 1,000,000 bbls. per day. The curve for zero production rate indicates that the pressure would build up from about 1,228 pounds per square inch to nearly 1,400 pounds per square inch by August, 1933, if the field were shut in. At a production rate of 400,000 bbls. per day, the average pressure would probably remain above 1,200 pounds per square inch through August, 1935, but at 1,000,000 bbls. per day would decline rapidly to below 1,000 pounds per square inch.

It is interesting to compare the predicted average rates of pressure decline expressed as pounds per square inch per 1,000,000 bbls. of oil produced for the several assumed rates of production. These figures are given in Table 1:

which shows that the pressure decline during the year per 1,000,000 bbls. of oil produced would be over eight times as rapid at a production rate of 1,000,000 bbls. per day as at 400,000 bbls. per day.

As was pointed out previously, the pressures are being lowered progressively out in the Woodbine sand to the west of the East Texas Field. The equations developed have also been used to gain some idea as to the extent of this decline in pressure. In Figure 4 is shown the calculated pressure gradient for August, 1934, extending from the East Texas Field out into the Woodbine formation. The curve indicates that the pressures have been lowered about 125

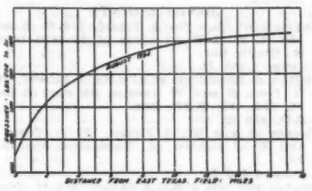

Fig. 4

pounds per square inch at a distance of 5 miles and, further, that the influence of production from the East Texas Field may be felt at a distance approximately 10 miles out in the Woodbine sand.

Conclusions

The data on the East Texas Field indicates clearly that water drive or water encroachment is by far the most important agency in maintaining the reservoir pressure or in producing the oil. From the analysis described herein, it appears that the water moves into the field by virtue of its own expansion upon reduction of pressure, and not, as in many cases, by flowing through the entire formation from its surface outcrop to the field. The effect of the expansive power of the water underlying the oil is probably an important factor in a great many oil fields, yet this factor has been overlooked by most geologists and engineers in their investigations of the mechanism of oil production.

The close agreement, as shown in Figure 1, between the calculated behavior of the average reservoir pressure in the East Texas Field and that actually observed indicates that the analysis can be used to predict changes in the average pressure over a reasonable period of time. Such calculations have important practical application in the estimation of the flowing life of the field, the determination of the proper rate of production, and similar problems.

The authors are indebted to T. V. Moore, in charge of production research work at the Humble Oil & Refining Co., who has directed the work and aided materially in the preparation of this paper.

TABLE 1—PREDICTED RATES OF PRESSURE DECLINE

Assumed rate, bbls. per day—	Total production, Aug., 1934-Aug., 1935	Predicted pressure, Aug., 1935, lbs. per sq. in.	Predicted pressure change from Aug., 1934-Aug., 1935, lbs. per sq. in.	Pressure change lbs. per sq. in. per million bbls. produced
200,000	73,000,000	1,305	+77	+1.05
400,000	146,000,000	1,215	—13	—0.09
600,000	219,000,000	1,130	—98	—0.45
800,000	292,000,000	1,035	—193	—0.66
1,000,000	365,000,000	945	—283	—0.78

Nomenclature

P_R = Original reservoir pressure, lbs. per sq. in.
P_T = Reservoir pressure at any time, lbs. per sq. in.
q_T = Production rate at any time, bbls. per day.
ρ = Density of oil and gas mixture at P, lbs. per cu. ft.
K = Permeability of sand, cu. ft. per day per sq. ft. per lb. per sq. ft. per ft.
c = Expansibility of fluids, cu. ft. per cu. ft. per lb. per sq. ft.
θ = Porosity, fraction.
oc^2 = Ratio, $K/\phi c$.
ϕ = Time, days.
a = Half length of field, ft.
x = Distance along co-ordinate parallel to north-south axis of field.
y = Distance along co-ordinate perpendicular to north-south axis of field.

REFERENCES

[1]Lindsly: A Study of Bottom Hole Samples of East Texas Crude Oil, U. S. Bur. Mines Rept. of Investigations, 3,212 (1933).
[2]Hudnall: Address delivered before A.A.P.G. at Dallas, Tex., in March, 1934.
[3]Lewis: Rock Pressure, Pet. Engr. (May, 1934).
[4]Hurst: Unsteady Flow of Fluids in Oil Reservoirs. Physica (1934), 5, 20.
[5]Moore, Schilthuis and Hurst: The Determination of Permeability from Field Data. Oil Weekly (May, 1933), 69.
[6]Watson: Theory of Bessel Functions, 450. Cambridge Univ. Press, 1922.
Gray and Mathews: A Treatise on Bessel Functions, 77. Macmillan, 1895.

Light Lubricants With High Pressure Properties

(Continued from Page 15)

advantages of a circulating system are apparent. Due to the high temperatures encountered, a well refined cylinder oil, similar to SAE 70 motor oil, has proven quite satisfactory.

Railway Bearings

During the last several years the use of industrial bearings on railroad rolling stock has come to the fore, and it seems evident that their use will steadily increase in this type of equipment in the future. For that reason grease manufacturers should know which types of lubricant have proven most satisfactory for this type of bearing.

This company has experimented with greases of various types, and with oils of various viscosities. To date, however, the best all around service has been obtained by the use of fairly well refined cylinder stock oils of approximately 125 seconds viscosity at 210° F. This type of oil has the advantage of having more body or film strength than the usual car oils which are in general use on railroad rolling stock. It also has sufficient body at operating temperatures to avoid difficulty with leakage or loss from the present bearing housings, and partly for this reason operating costs are apt to show up better with this type oil. We are inclined to feel that in order to meet extreme weather conditions better the next move will be toward a lower viscosity oil, and one containing extreme pressure properties.

Testing Apparatus

In order to measure in the laboratory the film strengths of various types of lubricant which might be encountered, our company has developed the Timken lubricant and wear testing machine, which has been quite helpful in obtaining data to help solve problems with which the company has been confronted. Straight mineral oils increase in film strength with increase in viscosity, and this machine demonstrates that fact. When dealing with extreme pressure lubricants, however, viscosity of the oil is of secondary consideration.

The type of element used to increase film strengths shows up prominently as illustrated by Figure 1. It will be noted that the curve shows that with an increase in sulphur content of the oil the film strength increases to a certain point. Apparently the maximum benefit is obtained with approximately 3 per cent sulphur. These lubricants were made by increasing the concentration of a certain sulphurized base oil. As the sulphur content of this oil was increased, the abrasive or wear producing properties were also increased. In contrast to this, when using a chlorinated type product it will be seen that with the high concentration of the chlorinated base oil a high film strength was developed, with lower wear or abrasive properties. By decreasing the percentage of base in this type of lubricant a decrease in the film strength and an increase in the abrasive properties was obtained.

Table A illustrates clearly the results obtained by the use of the two elements ordinarily used to impart extreme pressure properties to lubricants.

TABLE A
EFFECT OF ADDING MATERIAL WHICH IMPARTS EXTREME PRESSURE PROPERTIES TO LUBRICANTS

Specimen	OK load	Wear 6 hrs. with 33-lb. lever load
Chlorinated Oils		
1	100 lbs. plus	.0035 grams
2	95 lbs. plus	.0030 grams
3	100 lbs. plus	.0045 grams
4	95 lbs. plus	.0020 grams
5	59 lbs. plus	.0050 grams
Sulphurized Fatty Oils		
1	43 lbs. plus	.0070 grams
2	43 lbs. plus	.0160 grams
3	33 lbs. plus	.0050 grams
4	33 lbs. plus	.0055 grams
5	43 lbs. plus	.0080 grams
6	43 lbs. plus	.0075 grams

Lead, sulphur and chlorine have been the substances largely used thus far in compounding extreme pressure lubricants. Due to the difference in properties of these substances, it is likely that lubricants containing various combinations of these substances will prove best for different services. The Timken Co. is inclined to feel that more attention should be directed toward the use of definite chemical compounds, such as hexachlorethane, chlorinated retene, etc., instead of trying to sulphurize and chlorinate complex fats whose resultant product is variable and unknown.

Oil Pays Ten Per Cent Tax on Invested Capital

The tremendous tax burden borne by motorists was the basis for Frank E. Packard's plea that taxicab owners join with the oil business in reducing existing tax levies. Mr. Packard, chairman of the American Petroleum Industries Committee, spoke before the National Association of Taxicab Owners meeting in Chicago October 12, and in part said:

"Last year the cost of government in this country was approximately $17,000,000,000, while the gross income of the people was approximately $40,000,000,000. Of every item purchased in this country during the year, seventeen-fortieths of the cost was due to taxation.

"Ten billions of the seventeen billions was raised by taxation. The public debt was increased by $7,000,000,000. Business is just upon the threshold of a burden of taxation heretofore not experienced in this country.

"Of all the business groups in the United States most heavily burdened by taxation is the oil industry. There is invested in this business in the United States approximately $12,000,000,000. Last year it paid a tax of $1,180,000,000, or nearly 10 per cent of its gross investment.

"The 23,800,000 registered motor vehicle owners in this country paid in 1933 the sum of $1,318,872,000 in motor vehicle and gasoline taxes. Of this amount a total of $301,932,039 went for registration fees, $518,195,712 as state gasoline taxes, $181,000,000 for Federal gasoline taxes, $247,744,425 as excise taxes and $70,000,000 in personal property and municipal taxes. The motorist alone paid more than one-eighth of all taxes collected from all sources.

"Taxicabs in this country paid $8,000,000 in motor fuel taxes last year. They paid $3,000,000 in state and city

licenses. They paid property and income, state excise, and other taxes aggregating $1,000,000. Your total tax bill was probably in excess of $12,000,000. If you had the $10,000,000 you paid in taxes and the Government had your net earnings, you would be infinitely better off.

"The situation has reached a point where the future of the automobile industry employing 10 per cent of the gainful workers of the country, and the future of the allied industries, such as, for instance, the taxicab industry, hinges largely on the degree to which highway transportation is freed from the shackles of unfair, burdensome, and discriminatory taxation. The petroleum industry, employing 2,000,000 persons and now paying 118 different taxes, equal to about 8 per cent of its total capital investment despite the fact that it has not shown a profit since 1930, is demanding relief and retrenchment. The motor tax bill for 1933 was 33.8 per cent greater than that of 1930, and this during the depression, in which taxes should have been reduced. On the basis of the total motor tax bill for 1933, the average motor vehicle last year was taxed $50.47, an increase of $12.75 per vehicle over 1930. At the current rate of taxation the average motor vehicle owner is taxed 26.7 per cent of the value of his property.

"The $1,318,872,000 which the highway users paid in 1933 is approximately $300,000,000 more than was paid out for highways last year. The highway user is already paying the entire cost of highway improvement and $300,000,000 besides. Also, 3,000,000 motor vehicles have disappeared from our highways since 1930."

Sinclair Enters Bid for Sherwood Oil Interest

The Sinclair oil interests, represented by the Consolidated Oil Corp. have reentered the field of bidders for the half interest of the Richfield Oil Co. in the Sherwood Oil Corp., a marketing company operating in Maryland and the District of Columbia. The recent bid of $1,060,000 filed by the Consolidated Oil Corp. exceeds that of the Gulf Oil Corp. by $10,000.

The other terms of the bid are identical with those cited by Gulf. It provides for the purchase of the entire stock of the company, one-half of which is owned by Sherwood Brothers. Consolidated also agreed to assume an obligation of $170,000 owed to Richfield of New York by Sherwood. William C. McDuffie, Richfield receiver, has petitioned the court for instructions on the question of accepting or declining the offer.

At the same time as the Consolidated bid was made, a court decision was rendered from the Federal Court in Los Angeles allowing definite action to transpire in the case. The most important points of the court's ruling are as follows:

1. The property covered by the bond indenture is to be identified as of the date of the appointment of the general receiver.

2. The after acquired property clauses in the bond indenture to not have the effect of subjecting to the lien the property which was acquired by the general receiver after the date of his appointment.

3. Where the receiver has sold items of property which were subject to the lien of the bond indenture, the proceeds of such sale must be accounted for to the benefit of the bondholders.

4. Moneys expended by the general receiver out of the unmortgaged assets for the benefit of the property subject to the lien must be accounted for to the benefit of unsecured creditors.

5. Income accrued to the general receiver is not subject to the lien.

6. Leases which by their terms require the consent of the lessor to assignment, or hypothecation, are not subject to the lien if consent to assignment of hypothecation had not been obtained at the time of the appointment of the receiver.

7. Accounts receivable of the receiver are not subject to the lien. This includes the accounts receivable against Richfield Oil Co. of New York.

8. Stock of Signal Hill Gasoline Co. is not subject to the lien.

9. The court refused to consider the contention of the trustee under the bond indenture that action of Congress abrogating the gold clause in private contracts was void because unconstitutional. The court ruled that by the special master's report all claims are payable in lawful money in the United States and no exception was taken to this finding of the master. The court therefore ruled that it had no jurisdiction to pass upon the propriety of findings of the master to which exceptions had not been expressly taken.

10. The after acquired property clause in the indenture covers personal property acquired before the receivership as well as real property.

Richard W. Millar, secretary of the Richfield reorganization committee, stated that now the court has completed the work on the special master's report, it is expected the court will turn its attention to the foreclosure decree. A draft of this decree, together with briefs setting forth contentions of various interested parties in respect to certain of its provisions, was submitted to the court in August.

ONTARIO GASOLINE TAX

TORONTO, Ontario, Oct. 13. — Hon. T. B. McQuesten, minister of highways for Ontario, has called a conference of the licensed gasoline tax collecting agencies in the various cities and towns of the province, to discuss various phases of gasoline tax collection.

The contemplated overhauling of the gasoline tax collection system includes the restriction of gasoline sale to licensed vendors. There will be no fee for the license, but penalties will be imposed if a vendor cannot produce one, and a rigid inspection of all gasoline vendors is planned. The conference will discuss the establishment of standard grades of gasoline, and requiring vendors to show plainly the grade of gasoline sold. This is to prevent the doctoring of gasoline with kerosene and distillates, neither of which are taxed or are conducive to high fuel values. The conference will also discuss the best methods of checking the movements of tankers, tank cars and tank wagons by means of regular reports, as well as checking all importations from foreign countries and from other provinces. Means will also be discussed of familiarizing vendors with the new gasoline regulations which become effective October 31. The department also plans to encourage maintenance of properly equipped rest rooms in service stations.

The gasoline tax, amounting to approximately $12,629,000 a year, represents one-fourth of the tax revenue of Ontario; and the department aims to eliminate gasoline bootleggers, protect the public from adulterated gasoline and secure efficient and complete collection of the tax.

West Texas Wildcats

(Continued from Page 47)

Phillips Pet. Co.'s No. 1 Kloh, 440 ft. from E line and 440 ft. from S line, Sec. 3, Blk. 43, Twp. 1s, T.&P. Sur.
T.P. 4,090 ft.; T.D. 4,286 ft.; testing.
Skelly Oil Co.'s No. 1 Scarborough, 617 ft. from S and 660 ft. from E, Sec. 26, Blk. B-15, P.S.L. Sur.
S.D. 3,300 ft.
Skelly Oil Co.'s No. 5-A University, 660 ft. from N and 1,980 ft. from E, Sec. 1, Blk. 35, University Sur.
T.D. 3,690 ft.; flowed 145 bbls. in 10 hrs. before shot.
Stanolind Oil & Gas Co.'s No. 3 J. M. Cowden, 440 ft. from S line and 440 ft. from W line, Sec. 34, Blk. 42, Twp. 1s.
S.D. 280 ft.
Sun Oil Co.'s No. 1 Wight, 2,200 ft. from S line, 440 ft. from W line, Sec. 2, Blk. 43, Twp. 1s, T.&P. Sur.
T.D. 4,270 ft.; to shoot.
Sunray & Llano's No. 2 Jones, 2,310 ft. from N and E, Sec. 6, Blk. 44, Twp. 3s.
Location.

EDWARDS COUNTY

Harry Adams' No. 1 Holman, 1,650 ft. from N and 330 ft. from E, Sec. 22, C.C.S.D. &R.G.N.G. Sur.
S.D. 540 ft.; show oil 520-25 ft.

EL PASO COUNTY

Mesa Oil Co.'s No. 1 Coronado Valley.
S.D. 1,225 ft.

FISHER COUNTY

Merry Bros. and Perrini, Inc., et al's No. 1 Dean, 660 ft. from S and E, Sec. 2, Blk. R., W. E. Richardson Sur.
Drlg. 1,615 ft.
Texas Co.'s No. 2 Daniels, 330 ft. from N and W, Sec. 194, Blk. 1, B.B.B.&C. Sur.
Drlg. 3,100 ft.
Texas Co.'s No. 1 First National Bank of Rotan, 330 ft. N and E of the NW cor. of Sec. 210, B.B.B.&C. Sur.
T.D. 3,115 ft.; hole full water.

GLASSCOCK COUNTY

John I. Moore et al's No. 1 J. S. McDowell, 1,980 ft. from N line and 660 ft. from E line of Sec. 22, Blk. 34, Twp. 2s, T.&P. Sur.
Drlg. 4,600 ft.
Wahlenmaier Pet. Corp.'s No. 1 Boyd, 990 ft. from N and E, Sec. 9, Blk. 36, Twp. 4s, T.&P. Sur.
Drlg. 250 ft.

HOWARD COUNTY

Fred Hyer et al's No. 1 Clay, 2,310 ft. from N and 330 ft. from E, Sec. 126, Blk. 29, W.&N.W. Sur.
Fishing 776 ft.
L. C. Harrison et al's No. 2 Texas Land & Mortgage Co., 2,310 ft. from E line and 330 ft. from the S line of Sec. 4, Blk. 30, Twp. 1s, T.&P. Sur.
Derrick.
Illinois Oil Co.'s No. 1 Logan, 990 ft. from N line, 2,310 ft. from E line, Sec. 2, Blk. 30, Twp. 1s, T.&P. Sur.
T.D. 2,850 ft.; acidized.
Iron Mountain Oil Co.'s No. 1 Read, 330 ft. from E line, 330 ft. from S line, Sec. 46, Blk. 30, Twp. 1n, T.&P. Sur.
Drlg. 1,327 ft.
Mixon et al's No. 1 Capps & Lucas, 2,310 ft. from S and 330 ft. from W, Sec. 17, Blk. 29, Twp. 1n, T.&P. Sur.
S.D. 1,745 ft.
Slagel's No. 1 Foster, 990 ft. from S and 330 ft. from W, Sec. 43, Blk. 29.
Spudded.

IRION COUNTY

Melrose Oil Co.'s No. 1 J. D. Sugg, 1,700 ft. from the E line and 308 ft. from the S line of Sec. 25, Blk. 2, H.&T.C. Sur.
S.D. 270 ft.

JEFF DAVIS COUNTY

C. M. Joiner's No. 1 Jones & Coffield, 770 ft. from N and 1,322 ft. from E, Sec. 8, Blk. 3, H.&T.C. Sur.
Derrick.

JONES COUNTY

Capital Oil Co.'s No. 1 Young, 150 ft. S and 330 ft. E of W 33 acres of 84-acre tract, R. Smith Sur.
Drlg. 1,999 ft.
Clifton & Braselton et al's No. 1 Cassey, 200 ft. from N and W lines of SE cor. of Sec. 15, Blk. 15, T.&P. Sur.
S.D. 850 ft.
Choate et al's No. 1 Faver, 170 ft. from S and E of Subdiv., A. Thompson Sur. No. 20.
Drlg. 1,410 ft.
Condor Pet. Co.'s No. 3 Sayles, 650 ft. from S and 330 ft. from W, Sec. 1, Blk. 20, T.&P. Sur.
Drlg. 1,128 ft.
Hammer & Beam's No. 1 Sheppard, 1,308 ft. from N and 200 ft. from E of 180-acre tract, D. Minter Subdv. No. 52.
Location.
John Byram et al's No. 1 P. Jones, 200 ft. from S and 660 ft. from W of NW, Sec. 5, Blk. 15, T.&P. Sur.
S.D. 1,935 ft. for pipe line connection.
Richards et al's No. 1 Ransom, 200 ft. from N and E, Sec. 244, B. M. Clopton Sur.
Spudded and S.D.
Southern Oil Co.'s No. 3 Cade, 330 ft. S and 990 ft. E in Sec. 17, Blk. 19, T.P. Sur.
S.D. 1,045 ft.
Texas Inland Oil Co.'s No. 1 Boax, 330 ft. from N and W of N 311 acres of S 611 acres, John Wall Sur. No. 272.
Drlg. 2,300 ft.
Texas Inland Oil Co.'s No. 2 Sellers, 640 ft. from N and 200 ft. from W, Wm. Deik Sur. No. 241.
Drlg. 1,395 ft.

LOVING COUNTY

D. C. Evans' No. 1 W. D. Johnson, 2,310 ft. from N and 1,650 ft. from W, Sec. 13, Blk. 57, Twp. 1, T.&P. Sur.
S.D. 2,030 ft.

PECOS COUNTY

Adams et al's No. 1 Schearer.
Location.
Adams et al's No. 1 Masterson.
Location.
California Oil Co.'s No. 24 Yates, 160 ft. from E line and 20 ft. from S line, Sec. 34, Blk. 194, G.C.&S.F. Sur.
S.D. 1,030 ft.
Cardinal Oil Co.'s No. 17-E Tippett, 150 ft. from E line of W half and 730 ft. from N of No. 5-E, Sec. 46, Blk. 194, G.C.&S.F. Sur.
S.D. 484 ft.
Gulf Prod. Co.'s No. 2 White and Baker, 330 ft. from N and E of Sec. 42, Blk. 194, G.C.&S.F. Sur.
T.D. 620 ft.; ran csg.
Illinois Oil Co.'s No. 2 University, 330 ft. from E line and 960 ft. from S line, Sec. 31, Blk. 24, University Land Sur.
S.D. 1,500 ft.
C. S. Messenger's No. 2 Rand Jones, 1,925 ft. from S line and 1,013 ft. from W line of Sec. 5, Blk. 9, H.&G.N. Sur.
S.D. 1,930 ft.
Trans-Tex. Oil Co.'s No. 1 Caldwell, 330 ft. from E line and 330 ft. from S line of Sec. 27, Blk. 46, Twp. 9, T.&P. Sur.
Drlg. 1,190 ft.

REAGAN COUNTY

E. P. Kirschner and White's No. 1 W. A. White and McIntosh, 720 ft. from E and 660 ft. from N of Sec. 1,223, E.L.&R.R. Sur.
S.D. 3,165 ft.
Skelly Oil Co. et al's No. 1-D E. S. Grayson, 1,980 ft. from N line and 660 ft. from W line of Sec. 34, Blk. 8, University Land Sur.
S.D. 3,292 ft.; saturated core 3,080-3,102 ft.

REEVES COUNTY

J. E. Cunningham's No. 1 Altman, 2,310 ft. from N line and 1,980 ft. from E line of Sec. 1, C. C. Wyatt Sur.
Drlg. 1,225 ft.
Hugo Freels' No. 1 B. Greenman, 330 ft. from NE line and 231 ft. from SE line of Sec. 21, Blk. 2, H.&G.N. Sur.
T.D. 3,985 ft.

RUNNELS COUNTY

Agnew and Currie's No. 1 H. E. Wade, 2,646 ft. from N line and 330 ft. from E line of Sec. 24, Domingo Diaz Sur. No. 532.
Drlg. 3,200 ft.
Hall Oil Co.'s No. 1 Brevard, 160 ft. N and W in Subdiv. 21, D. Diaz Sur.
Drlg. 1,710 ft.
Melrose Oil Co.'s No. 1 L. P. Woods, 150 ft. from NE lines and 2,475 ft. from W line of survey, Willett Holmes Sur. No. 100.
S.D. 1,429 ft.; to run csg.
R. Wells' No. 1 James, 396 from N and 330 ft. from E of James tract in Sec. 16, D Diaz Sur.
S.D. 180 ft.

SCHLEICHER COUNTY

John M. Cooper et al's No. 1 Bert Page, 1,290 ft. from N line, 1,470 ft. from W line of Sec. 40, Blk. 1, G.H.&S.A. Sur.
Drlg. 5,757 ft.
Humble Oil & Ref. Co.'s No. 1 Ike Honig, 2,640 ft. from N line and 2,650 ft. from E line of Sec. 38, Blk. M, G.H.&S.A. Sur.
Drlg. 4,773 ft.

SCURRY COUNTY

Coffield & Guthrie's No. 1 Holliday, 2,310 ft. from N and 330 ft. from W, Sec. 120, Blk. 97, H.&T.C. Sur.
Location.

STERLING COUNTY

John I. Moore's No. 1 McIntire, 660 ft. from S and E, Sec. 35, Blk. 23, H.&T.C. Sur.
Drlg. 1,460 ft.

STONEWALL COUNTY

Merry Bros. and Perrini et al's No. 1 Williams, C SW of SW, Sec. 6, Blk. C, A.B. &M. Sur.
Fishing 2,045 ft.

SUTTON COUNTY

Texas & Hesselman's No. 1 Mower, 1,980 ft. from S and W of Sec. 39, Blk. 5, T.W.& N.G. Sur.
Rigged up standard tools.

TAYLOR COUNTY

Dunnigan Bros. et al's No. 3 Hunter, 850 ft. from S and 250 ft. from W of Subdiv. No. 14, Willis Sur.
T.D. 1,950 ft.; pulling pipe.

TERRELL COUNTY

W. A. Sudderth's No. 1 Phelps, 2,157 ft. from N line and 2,482 ft. from the W line of Sec. 5, Blk. 4-A, G. W. Turley Sur.
S.D. 5,635 ft.

UPTON COUNTY

Gulf Prod. Co.'s No. 103 McElroy, 1,980 ft. from S and 660 ft. from W, Sec. 197, Blk. F, C.C.S.D.&R.G.N.G. Sur.
Good show high gravity oil at 10,795-10,840 ft.; drlg. 10,864 ft.
Perry & Breeding's No. 1 Lane, 1,650 ft. from S line and 990 ft. from E line of Sec. 36, Blk. 1, M.K.&T. Sur.
Drlg. plug 2,203 ft.
Theabotal Oil Co.'s No. 2 J. F. Lane, 1,650 ft. from N and 990 ft. from E of Sec. 36, Blk. 1, M.K.&T. Sur.
T.D. 2,203 ft.; to pump.
Williams & Williams Drlg. Co.'s No. 1 Robbins, 1,600 ft. from S and 1,900 ft. from E, Sec. 4, G.C.&S.F. Sur.
S.D. 2,040 ft.

WARD COUNTY

Alexander's No. 1 Richter, 1,650 ft. from NW, 1,170 ft. from NE line of Sec. 27, Blk. 34, H.&T.C. Sur.
S.D. 1,700 ft.
Bradford et al's No. 1 E. R. Allen, 660 ft. from NW line and 551 ft. from NE line, Sec. 11, H.&T.C. Sur.
Drlg. 620 ft.
Cook Drlg. Co.'s No. 1 Wood, 330 ft. from NW and SW, Sec. 5, W. F. Stewart Sur.
Set csg. 2,209 ft.
Plains Prod. Co.'s No. 1 J. J. McGregor, 660 ft. from SE line, 660 ft. from SW line, Sec. 169, Blk. 34, H.&T.C. Sur.
Drlg. 1,565 ft.
Postelito & Caprito's No. 1 Purcell, 330 ft. from NE and 990 ft. from NW, Sec. 17, Blk. 34, H.&T.C. Sur.
Rig up and S.D.
Sageland Oil Corp.'s No. 2 Pure-Bennett, 1,650 ft. from NW and 2,310 ft. from SW Sec. 16, Blk. 34, H.&T.C. Sur.
Spudded and S.D.

WINKLER COUNTY

Harry Adams' No. 2 Scarborough, 990 ft. from N line and 990 ft. from W line, Sec. 2, Blk. 77, P.S.L. Sur.
Location.
Jeffries et al's No. 1 Brown & Altman, 2,310 ft. from S and W, Sec. 6, Blk. B-5, Machine.
J. C. Maxwell's No. 1 Clapp, 1,980 ft. from N and 330 ft. from W, Sec. 37, Blk. 26, P.S.L. Sur.
Drlg. 350 ft.
R. S. Mathews et al's No. 1 Evans, 1,320 ft. from N line and 1,320 ft. from W line, Sec. 46, Blk. 73, P.S.L. Sur.
S.D. 110 ft.
Sid Richardson's No. 1 Hill, 1,980 ft. from E line, 660 ft. from S line, Sec. 18, Blk. B-11, P.S.L. Sur.
T.P. 2,300 ft.; T.D. 3,132 ft.; ran csg.
Sid Richardson's No. 5-A Scarborough, 330 ft. from W and 190 ft. from S, Sec. 1, Blk. 22-C, P.S.L. Sur.
Machine.
Sayre Oil Co.'s No. 1 Howe, Sec. 12, Blk. 26, P.S.L. Sur.
Shows of oil at 2,709 ft. and 2,775 ft.; T.D. 2,874 ft.; flowed 15 bbls. per hour.
Skelly Oil Co.'s No. 1 Hailey, Sec. 25, Blk B-11, P.S.L. Sur.
T.D. 3,112 ft.; T.P. 2,105 ft.; fishing 2,113 ft.

East Central Texas Wildcats

(Continued from Page 48)

N. Delaney Sur., 5 miles N of Lone Oak. Derrick.
L. G. Priest's No. 1 Amelia Barnett, 1,075 ft. from W line, 320 ft. from S line of J. C. Hamer Sur.
S.D. 1,335 ft.

KAUFMAN COUNTY

W. J. Lewis et al's No. 1 D. Clark, 430 ft. from S line and 600 ft. from E line of Sur., 6½ miles NW of Elmo.
S.D. 478 ft.

LAMAR COUNTY

Cole et al's (formerly Optometrist Oil Club) No. 1 J. M. McFaddin, 450 ft. from S and W lines of E 25-ac. tract, 10 miles NW of Paris, Joseph Dick Sur.
S.D. 2,506 ft.

LEON COUNTY

Normangee Corp.'s No. 1 B. H. Henry, 1,850 ft. from E line and 2,700 ft. from N line of survey, Robert Rogers League, 2¼ miles NE of Normangee.
S.D. 2,100 ft.

LIMESTONE COUNTY

Doughtry et al's No. 1 S. Welch, 150 ft. from NW and 900 ft. from NE of 77.64-acre tract in A. Varilia Sur., 4 miles W of Groesbeck.
Rigged up.
Peyton Bros. No. 1 Steubenrach, 370 ft. NW from SE line, 1,170 ft. SW of NE line of 346.39-ac. tract, P. Varela Sur.
Coring 5,975 ft.
Schultz' No. 1 Roy Ward, NE cor. of 73.3-ac. tract, 5 miles W of Mexia Field, Harrison York Sur.
Derrick.
V. V. Waite's No. 1 Barrow, 650 ft. from S and 950 ft. from E line of 320-ac. tract, W. McKenzie Sur., 3½ miles NW of Thornton.
Location.

MORRIS COUNTY

McGinnis et al's No. 1 Staggers, 800 ft. from S line of survey and 150 ft. from W line of lease, J. B. Nelson Sur.
S.D. 3,907 ft.

NACOGDOCHES COUNTY

Murray Oil Co.'s No. 1 C. B. Watkins, 150 ft. from N line and 330 ft. from NW lines of 160-ac. tract, 3 miles S of Caro, H. Y. Bailey Sur.
S.D. 3,300 ft.
J. W. Rich et al's No. 1-A R. W. Haslewood, 5,450 ft. from S line and 2,800 ft. from W line of survey, 50 ft. N of No. 1, 15 miles SW of Nacogdoches, Ewing Sur.
S.D. 701 ft.

NAVARRO COUNTY

Bennett Brothers' No. 1 T. E. Stewart, 150 ft. from NE line of lease, 10 miles SW of Corsicana, Wm. R. Bowen Sur.
S.D. 1,186 ft. to test.
R. B. Codding et al's No. 1 Lela Kelt, 450 ft. from S line and center of N and S lines of lease, 3 miles NE of Chatfield. C. B. Emmons Sur.
S.D. 1,546 ft.
W. J. Keeling et al's No. 1 J. F. Rushing 484 ft. from N line and 150 ft. from W line of 184-ac. tract, 6 miles SW of Richardson, Henry Ford Sur.
S.D. 2,378 ft.; (corrected).
McCullough et al's No. 1 C. Berry, 330 ft. from SE cor. of 35-acre tract, 1 mile W of Dawson, William Moss Sur.
S.D. 625 ft.
Syam Oil Co.'s No. 1 Mrs. Ray, 965 ft. E along N line from NW cor. Stevenson 101-acre tract and 305 ft. N at right angles, 3 miles SW of Rural Shade.
Spudded.
Wheelock and Collins' No. 1 I. N. Cerf, 375 ft. from N line of lease and 1,050 ft. from W line of lease, James Smith Sur. No. 726.
S.D. 6,500 ft.

RAINS COUNTY

Wadley et al's No. 1 P. F. Jones, 400 ft. out of SW cor. of 22-ac. tract, 2½ miles S of Alba, B.B.B.&C. Sur.
T.D. 4,730 ft.
Rio Oil Co.'s No. 1 Johnson, 330 ft. N and W of 39 ac. tract, R. Hitchkiss Sur., 4½ miles E of Emory.
Drlg. 220 ft. in new hole, 65 ft. NW.

RED RIVER COUNTY

Cornell and Spear's No. 1 E. H. Thompson, 664 ft. from S and 1,062 ft. from W of NE cor. of 384-ac. tract, E. Smith Sur.
Drlg. 1,789 ft.

RUSK COUNTY

Headwater Oil Co.'s No. 1 F. L. Gary, 375 ft. N of S line and center of E and W lines of 200-ac. tract, 3 miles E and S of Henderson, Jose A. Mora Sur.
S.D. 3,197 ft.
George Hudson et al's No. 3 Jeff Phillips, 150 ft. from N line of survey and 700 ft. from W line of 100-ac. tract, 4 miles SE of Minden, N. Villaria Sur.
Fishing 3,675 ft.
Ben Lamb's No. 1 H. Leath, 330 ft. out of NW cor. of 155-acre tract in L. J. Dooley Sur., 2½ miles E of Pirtle.
Drlg. 660 ft.

SMITH COUNTY

Deck et al's No. 1 Dendall, 320 ft. from S and W of 55-ac. tract, J. Williams Sur., 3 miles E of Van Field.
Spudded and S.D.
Fair et al's No. 1 Rushing, 1,000 ft. SE of old hole, 1½ miles SE of Whitehouse.
S.D. 4,400 ft.
Paul S. Williams et al's No. 1 Dean, 320 ft. E and 730 ft. N of 100-acre tract in Denson Moore Sur., 1 miles NE of Bullard.
Derrick.

UPSHUR COUNTY

Virgil Hodges et al's No. 1 J. M. Floyd, 330 ft. from NE cor. of 126-ac. tract, 4 miles N of Gladewater, Railroad Sur.
S.D. 3,764 ft.
Lanier and Moore's No. 1 Vaughan, 230 ft. from S line and 330 ft. from W line of 100-ac. tract, 2 miles NW of Big Sandy, P. W. Standifer Sur.
S.D. 1,042 ft.

VAN ZANDT COUNTY

Pete Corley et al's No. 1 Slaton, 150 ft. from W and 660 ft. from N lines of William Carlton Sur., 3 miles SE of Ben Wheeler.
Rig.
Gillum and Allen et al's No. 1 A. T. Bass, 150 ft. from W line and 150 ft. from N line of 10-ac. tract, William Hart Sur.
Fishing 4,267 ft.
Green and Winn's No. 1 Eaton, 330 ft. out of most westerly SW cor. of J. Wilson Sur., 2 miles SE of Martin.
Location.
Hodges & Schwartz's No. 1 McKinsey, C of N and S lines and 150 ft. from W of 106-ac. tract, Wm. Daniels Sur.
Coring 1,322 ft.
Martin & Evans' No. 1 Bryant, 483 ft. N of same operators' dry hole, Nacogdoches County School Land Sur.
Rigged up.
Miller et al's No. 1 J. M. Palmer, 150 ft. from S and E lines of 69-ac. tract, Nacogdoches County School Land Sur.
S.D. 616 ft.
Peden and Olson's No. 1 J. M. Palmer, 200 S of No. 2 and 140 ft. from W line of tract, J. Goodman Sur.
S.D. 1,288 ft.; 70 ft. fluid in hole in 24 hrs.
M. Rouch et al's No. 1 Bearden & Palmer, 150 ft. out of SE cor. of 61-ac. tract, Nacogdoches C.S.L.
S.D. 1,240 ft.

WOOD COUNTY

Alex Snyder et al's No. 1 T. Holmes, 200 ft. out of NE cor. of 122-ac. tract, 1½ miles SE of Hawkins, A. N. McKnight Sur. 399.
Drlg. 4,965 ft.

Southwest Texas Wildcats

(Continues from Page 46)

BROOKS COUNTY

Cole Pet. Co.'s No. 1 Ulrich, 785 ft. E line, 1,323 ft. S line of C.C.S.D.&R.G.N.G. Sur. 7.
Drlg. 4,514 ft.

CALDWELL COUNTY

Anderson's No. 1 Perry, 330 ft. SE and NE lines of 27-ac. tract, Giddeon Pace Sur.
Drlg. 1,740 ft.
F. P. Hynes et al's No. 1 Tramwell, 750 ft. from SE line and 330 ft. from NE line of tract in Easter Berry Sur.
No report.
Kurs Oil Co.'s No. 1 Kurs ranch fee, 4,600 ft. SW line and 4,300 ft. SE line of Barnard Klekant Sur.
No report.
F. Meyers' No. 1 Mooney, 260 ft. from road, 330 ft. from middle of SE cor. of 102-ac. tract, Seale Sur.
Location.
Stanley Smith's No. 1 J. C. Copeland, about 4 miles SW of Lockhart and beyond the Mebana Estate.
Setting up machinery.

DUVAL COUNTY

H. B. Grimm's No. 1 J. H. Briggman, 330 ft. from S line, 150 ft. from E line of Sur. 285.
Location.
Grimes et al's No. 1 Fitsimmons, 330 ft. from S and E lines of Sur. 291.
Drlg. wtr. well.
G. Stewart Smith-Jefferson Oil Co.'s No. 1 Garcia, 990 ft. south of N line, 330 ft. W of E line, Blk. 2, Jose Marcelo Hinojosa grant.
Drlg. 5,205 ft.; dry sand 4,438-44 ft.
O'Byrne & Jennings' No. 1 Benavides, 2,734 ft. from S cor. and 330 ft. from W line at right angles, Sur. 355.
Drlg. 2,355 ft.; sand 1,098-1,100 ft.; S.G. 2,294-99 ft.
Tom Graham and Texon Royalty Co.'s No. 2 Parr, 2,050 ft. from N line, 2,550 ft. from E line, Sur. 135.
T.D. 3,475 ft.; testing sand 7-in. csg. at 3,470 ft.
Mills Bennett Prod. Co.'s No. 1 D.C.R.C., 150 ft. N, 4,200 ft. E line of Sur. 192.
Drlg. wtr. well.
Texas Co.'s No. 1 G. W. Sutherland, making location in Sur. 503.
T.D. 95 ft.; set csg.; W.O.C.
Texas Co.'s No. 1 Tom Graham, 5,045 ft. N 65 deg. E and 1,130 ft. S 25 deg. E, W cor. Geo. Reynolds Sur. 572.
T.D. 5,142 ft.; P.B. to 4,769 ft.; W.O.C.

EDWARDS COUNTY

Carter et al's No. 1 W. A. Miers, 990 ft. from N and E lines of Sec. 6, C.C.S.D.& R.G.N.G. Sur.
No report.
Will Oilhausen's No. 1-B Turney, 660 ft. from W line, 1,632 ft. from N line of Sec. 176 C.C.S.D.&R.G.N.G. Sur.
No report.
H. H. Sides' No. 1 Turney, C.C.S.D.&R.G.N.G. Sur. No. 164, 1,320 ft. N line and W line of survey.
No report.
Harry Adams' No. 1 Holman, 1,650 ft. N line, 330 ft. from E line, Sec. 22, C.C.S.D. R.G.&N.G. Sur.
No report.

FAYETTE COUNTY

Magnolia Pet. Co.'s No. 1 Steinman Almansure Sur., 330 ft. N line and E line of most southerly cor. of 90-ac. tract.
T.D. 3,725 ft.; abd.
J. Elmer Thomas and Henshaw Bros.' No. 1 Gleckler, 330 ft. SW and SE of N cor. of 93.5-ac. tract in Anna Powell League.
Drlg. 2,700 ft.; 10-in. csg. 40 ft.

FRIO COUNTY

Amerada Pet. Co.'s No. 1 Halff & Oppenheimer, begin at most easterly N cor. of John H. Gibson Sur. No. 14, thence SE along NE line of Sur. 2,100 ft., thence SW at right angles 800 ft. (4 mi. SW of Pearsall).
Resumed drlg. 3,982 ft.; T.D.

GILLESPIE COUNTY

Ed L. Nixon's No. 2 Lindig, 12,696 ft. S line, 1,333 ft. W line, Maria Josepha Guerra Sur. No. 41, or 6 ft. S of No. 1.
Drlg. 500 ft.

GOLIAD COUNTY

Oceanic Pet. Co.'s No. 1 Fromme, 1,500 ft S line, 1,200 ft. W line of 62-ac. tract in P. D. Dexter Sur., 10 miles N of Goliad
No report.
Jack Porter's No. 1 Mrs. N. Meyers, NW cor. of 404.54-ac. tract, 1¾ miles SW of Huisache.
Drlg. below surface csg.

GONZALES COUNTY

Weinert et al's No. 1 A. Exilles, 3,340 ft. S line and same N of river and 150 ft. E line of tract, Ira Nash Sur.
Drlg. 3,510 ft.; topped chalk at 3,480 ft.

GUADALUPE COUNTY

Diamond Half Oil Co.'s No. 1 Wm. Maiserhofer, 506 ft. from E line and 1,500 ft. from N line of 51.85-ac. tract in L. H. Peters Sur.
Drlg. 1,550 ft.
L. E. Trout's No. 1 McKee, Green DeWitt Sur., SW Darst Creek.
No report.

HIDALGO COUNTY

Davis & Harrison's No. 1 Luia George, 300 ft. from S and 700 ft. from E lines of Tract 13, Porcion 41, Ancient Jurisdiction of Reynosa.
No report.
Rogers et al's No. 1 Fairbanks, 7 miles S of McAllen.
Dropped from report.
Union Sulphur Co.'s No. 2 American Rio Grande L. & I. Co., 400 ft. from S and E lines of tract, Blk. 86, North Capisallo district.
Drlg. 6,650 ft.

JIM HOGG COUNTY

John D. Norwood's No. 1 C. W. Hellen, 330 ft. N and W lines, Sur. 48.
Drlg. 1,255 ft.
J. M. Shugart's No. 1 R. Holbien, 100 ft. from N line, 330 ft. from S line of Blk. 55, Sur. 17 of Holbien Subd., of Las Animas grant.
Location.

JIM WELLS COUNTY

Plymouth Oil Co.'s No. 1 Cuero Cattle Co., 330 ft. from S and W lines of H.T.&B. Sur. No. 7, 2¼ miles W from Alfred.
No report.
Smith & Storey's No. 1 Martha E. Ellworth, 330 ft. N and W from SE cor. of W half of W 426 acres of Stanley Welch Sur.
No report.

KARNES COUNTY

California Oil Co.'s No. 1 J. C. Tom, Jr., 466 ft. each way from NW cor. of 6,525-ac. tract, Maria-De Jesus Y. Barbo grant.
T.D. 400 ft.; set surface csg.
F. P. Hynes et al's No. 1 Swiercy, 2,650 ft. from NW line, 500 ft. from SW line of 100-ac. tract in Gasper Flores Sur.
T.D. 100 ft.; drilling.
R. E. Ceseaux et al's No. 1 Tom Campbell, 330 ft. S and E cor. of farm and survey J. R. Backer Sur., 12¼ miles SW of Falls City.
No report.

KENDALL COUNTY

Walter Bradley's No. 1 Werner, John F. Torrey Sur.
No report.
W. R. Shanklin's No. 1 Seidenstick, 1,835 ft. from most easterly E line, 100 ft. from most northerly S line of Antonio Rodegues Chacon Sur. 257.
No report.

KERR COUNTY

Edmiston Oil Corp.'s No. 1 Whitworth, 1,160 ft. from S line and 1,333 ft. from E line of Sec. 1,439 of the H.E.&W.T. Sur.
No report.
Herbert Oil Co.'s No. 1 J. D. Witt, 13,200 ft. from N line, 1,200 ft. from W line of Sec. 1,932, Hamilton Sur.
No report.
Jeff Love and Eastland Oil Co.'s No. 5-E Jeff Love, 1,500 ft. SE of No. 1 and 1,650 ft. from SE cor. and 300 ft. from N line of Sec. 1,591.
No report.
J. F. Morrissey et al's No. 1 F. A. Karge, 1,400 ft. from S line and 600 ft. from E line of survey, Sec. 1, B.S.&F. Sur.
Drlg.; carrying 6¼-in. csg. at 1,000 ft.; T.D. 1,122 ft.
G. F. Schreiner's No. 3 Jeff Love, 1,444 ft. from W line, 1,194 ft. from S line of Sur., 660 ft. N and 100 ft. E of Evans & Gants' No. 1 Love, Martines Sur. 1,594.
Location.

KLEBERG COUNTY

J. S. Brown's No. 1 Antone Dietz, Sec. 7, Hotch estate.
Dropped from report.
H. Clark et al's No. 1 Kivlin, Sec. 39.
Dropped from report.
Ryalls & Bartlett's No. 1 Flats, Sec. 48.
Dropped from report.

LaSALLE COUNTY

Dupree Fountain's No. 1 R. J. Kroschewsky, 1,000 ft. from N line, 150 ft. from E line, in A. G. Starty Sur.
Dropped from report.
Standard Oil Co. of D. C.'s No. 1 J. M. Martin, 300 ft. S and W lines of 542-ac. farm in Sur. 683.
No report.

LEE COUNTY

Jas. E. Pederson's No. 1 Turner, David Hudson Sur.
No report.

LIVE OAK COUNTY

W. H. Helmerich's No. 1 Cartwright, 660 ft. from W line, 330 ft. from S line of Lot 16, Seale, Morris & Sosio Sur.
Location.
Henderson Coquat's No. 1 Jacob, 660 ft. from N and E lines of Tract 27, Charles E. Trapp Subd., of Everett & Henry Sur.
T.D. 1,826 ft.; P.B.; set whipstock to sidetrack and recourse sand.
Henderson Coquat et al's No. 1 Robertson, Sec. 314.
Drlg. 2,300 ft.
Henderson Coquat et al's No. 1 Little, 1,320 ft. NE of S cor. of M. M. Shipp Sur. and 330 ft. N of S line.
Drlg. 1,000 ft.
O'Neil & Coquat's No. 4 Sanger.
No report.

McMULLEN COUNTY

Armoil Prod. Co.'s No. 2 K. Martin, Sur. 489.
Location.
Beer-Witherspoon's No. 1 Bazell, 330 ft. from N and W lines of 40-ac. tract in Fant & Fadden Sur.
Location.
Boling's No. 1 Brown, 1,500-ac., NW Crowther field.
Location. Contract calls for 1,000 ft. test.
Circle W Oil Co.'s No. 1 Wheeler, NW cor. Sec. 44, of Two Rivers Ranch Subd.
T.D. 835 ft.; drlg.
Choate & Noble's No. 1 Miles, 330 ft. from S line, 2,760 ft. from E line of 1,250-ac. tract in Stephens Sur.
Location.
Encino Oil Co.'s No. 1 Walker, 1,200 ft. from N and W lines of 2,569-ac. tract, Sur. 128.
Drlg. 2,025 ft.
W. W. Kelley's No. 1 Tom Walker, cor. of Surveys 106, 182, 23 and 104.
Rigging up.
C. C. Shumway's No. 8 Shiner.
Rig up.
Charles Wuest's No. 1 Fisher, Roderick O'Boyle Sur.
Moving in.
Hy Yound's No. 1 Callihan, James Gardner Sur., NW cor. Blk. 4, Sec. 6.
Derrick.

MEDINA COUNTY

C. M. Peacock's No. 1 Odem, 160 ft. from W line, 200 ft. from S line of Castro Sur. No. 173-174.
Location.
Scoggins & Sanders' No. 1 L. W. Burrell, 150 ft. from E line, 1,750 ft. from N line of M. E. Gage Sur. 395.
T.D. 1,715 ft.; S.D.

NUECES COUNTY

Buff Pet. Co.'s No. 1 Vincent Bluntzer, 660 ft. N line, 660 ft. E line of Share 7 of Bluntzer Subd.
Rigging.
Clymore Oil Co.'s No. 1 Palo Alto Farms, 2,640 ft. from N and E lines of Sec. 153 of Bishop Subd.
Derrick.
Standolind O. & G. Co.'s No. 3 Stratton, 1,980 ft. from N line, 660 ft. from W line of NE Sec. 13, DeAbajo grant.
T.D. 6,904 ft.; washing down over drill pipe; 13-in. csg. at 683 ft.
Texon Royalty Co.'s No. 1 Robert Driscoll, 330 ft. from N line, 5,497 ft. from W line of 330-ac. Driscoll tract and E of Simmons & Perry tract.
Rig up.
Texon Royalty Co.'s No. 1 W. W. Walton, 330 ft. from N and W lines of 166 2/3-ac. tract in Lot No. 5.
T.D. 4,775 ft.; completing as gas well spraying distillate.

REAL COUNTY

M. J. Heartwell et al's No. 2 L. J. Haby, 694 ft. from W line and 2,153 ft. from S line of A.B.&M. Sur. No. 175.
T.D. 2,837 ft.; comp. changing to heavier rig; preparing to resume drlg.

SAN PATRICIO COUNTY

Allied Minerals' No. 1-A Ramsey, 466 ft. E, 220 ft. N of SW cor. of the North B. Giddings Sur. on a 1,000-ac. tract.
No report.
Lonnie Glasscock's No. 1 M. F. Timmons, 330 ft. out of SE cor. of Blk. 27, San Patricio townsite.
Rigging up.
Gum Hollow Oil Co.'s No. 1 J. G. Willacy, 2 mi. W Portland.
Location.

STARR COUNTY

Cooper & Andrews' No. 1 J. M. Martines, SW cor. Sec. 135.
Location.
C. R. Borah's No. 1 A. Guerra, San Jose grant, 330 ft. from N and 150 ft. from E line of Sec. 6 (NE part of county).
No report.
E. P. Evans' No. 1 Kelsey Bass, 330 ft. N of State Highway 4, Sec. 7, Subd. Porcions 75,76 and 77.
Drlg. 1,250 ft.
C. L. Smith et al's No. 1 J. M. Longfellow, 330 ft. out of NW cor. of Sur. No. 281. Set csg. at 985 ft.; in wtr. well.
Heep Oil Co.'s No. 1 Guerra, 330 ft. from NE and SE lines of Blk. 35, J. N. Crawford Subd., Porcion 56, Jurisdiction of Mier.
Location.
R. M. Mitchell's No. 1 Kelsey Bass, 150 ft. from N line, 1,150 ft. from E line, Share 5, Por. 75.
Location.
R. M. Mitchell's No. 1 Seabury, 4,000 ft. from N line, 150 ft. from E line of Share 5, Por. 75, Camargo.
No report.
Smith & Weston's No. 1 M. M. Garcia, Blk. 9, Sur. 908.
Location.
Sun Oil Co.'s No. 1 Gonzales & Clark, 600 ft. out of NW cor. of NE Sec. 372, T.T. Ry. Sur. No. A-773.
Drlg. 1,450 ft.
United Prod. Co.'s No. 1 Guerra, 36, 170 ft. from NE line, 1,521 ft. from NW line of Porcion 55.
T.D. 200 ft.; reaming to set 10-in. csg.
E. L. Younkin's No. 1 Kelsey Bass, 330 ft. from S line, 7 ft. from W line of Blk. 19 in Porcion 87.
T.D. 1,315 ft.; prep. to run D.S. test.

TRAVIS COUNTY

Humble O. & R. Co.'s No. 1-B Buck Christian, 990 ft. from SE line, 330 ft. from SW line of 127-ac. tract in Kemp Sur.
T.D. 757 ft.; cored in Serpentine after drilling plugs; comp. as small gas well.
Marts & Beavens' No. 1 Emil Bloomquist, 150 ft. from NW line and SW line of

99½-ac. tract in Peter C. Harrison Sur.
No report.

UVALDE COUNTY

Humble Oil & Ref. Co.'s No. 1 R. L. Anderson, 7,450 ft. SW of NE line and 9,100 ft. SE of NW line of J. J. Guerra Sur (8 mi. NE of Uvalde).
Drlg. 4,295 ft.

T. T. Word's No. 1-B Truelove, 45 ft. E of No. 1-A.
Drlg. lime 1,480 ft.

WEBB COUNTY

W. W. Lincoln's No. 1 M. B. Volpe, 3,800 ft. N, 150 ft. W line of Sur. 2,011.
Spudded in.

W. P. Morris' No. 1 A. M. Bruni, 994 ft. NW line, 943 ft. NE line, Blk. 65, G. M. Brown Subd, Saltea pasture, in J. V. Borrego grant.
No report.

Fidelity Exploration Co.'s No. 1 Soldivar, 1,300 ft. from E line, 2,600 ft. from N line of Sur. 657.
Drlg. soft sand at T.D. 2,952 ft.; had show of gas at 2,929 ft.

WILLACY COUNTY

W. W. Silk's No. 1 Stillman, Lot 16, Blk. 30, Santa Rosa Subd., Share 44.
No report.

WILLIAMSON COUNTY

Mann & Ross et al's No. 1 F. Ross, John Bevil Sur. 56.
T.D. 710 ft.; preparing to run csg.

T. J. McConnell's No. 1 J. R. Nazier, 150 ft. from S line and San Gabriel River and 150 ft. from E line of 124-ac. tract in Zarzo Sur.
T.D. 675 ft.; standing in chalk.

J. A. Morgan Russell's No. 1 Nelson Est., 150 ft. S line and 1,115 ft. E line of J. L. Justin No. 2 Sur., 5 miles S of Georgetown.
Drlg. 690 ft.; 6⅝-in. csg. at 345 ft.

Stalley & Caffy's No. 1 A. J. Nelson, 350 ft. from SE line and 150 ft. from NE line of Barney C. Love Sur.
No report.

WILSON COUNTY

Ray Oil Co.'s No. 1 J. M. McDaniel, 1,700 ft. from SW line, 350 ft. from NW line of 193.6-ac. tract in Concepcion Bostelio Sur. No. 9.
No report.

J. C. Yancey's No. 1 Lyssy, 300 ft. from SE and SW lines of lease in D. J. Holt Sur.
No report.

ZAPATA COUNTY

C. C. Crews' No. 1 M. D. Slator, 2,111 ft. from SW line, 1,980 ft. from SE line of Blk. 1, Mission Oil Co. Subd. of Slator ranch, Borrego grant.
No report.

Danvers & Harrison's No. 1 M. J. Vela, 686 ft. NE line and 300 ft. NW line, or 3,140 ft. E line and 330 ft. N line of Por. 39, Blk. 7, Bela Subd.
No report.

J. W. Edwards' No. 1 D. A. McAskill, 150 ft. from N and E lines of Blk. 62, J. W. Edwards Subd. of 4,449.6-ac. tract out of Corralitis Subd. of the J. V. Borrego grant.
Drlg. 637 ft.; 10-in. at 25 ft.

Merle Gunby's No. 3 Alice D. Haynes, 200 ft. SE and NE lines, Blk. 9, Haynes Subd., Comitas and Villa grant.
Drlg. 755 ft.

H. & M. Drlg. Co.'s No. 1 Slater, 614 ft. from SW line, 150 ft. from SE line, Blk. 65, J. B. Borrego grant.
T.D. 32 ft.; standing.

H. V. & W. Oil Co.'s No. 1 Cuellar, 150 ft. NE line and 460 ft. SE line of Blk 3, Sur. 3, Pappas Subd., Por. 34.
No report.

Howell Muckelroy's No. 1 Filemn Flores, 77 ft. from SE line on NE line Lot 2, Blk. 30, Por. 37.
Derrick.

Joe Palmer's No. 11 S. Vela, 330 ft. from NE and SE lines of Blk. 170, Share 4 of L. Grillo grant (3 mi. E of Redondo Pool).
Drlg. 1,120 ft.

E. P. Wells' No. 1 S. E. Garcia, 150 ft. from N and E lines of 200-ac. tract in Pedernal grant.
Moving in rig.

Southwest Texas Proven

Week Ending October 13

NORTH DALE POOL—BASTROP COUNTY

Cole Pet. Co.'s No. 1 Rubin Gage, NE cor. of tract, 150 ft. each way from corner.
Location.

Cole Pet. Co.'s No. 6-B American Natl. Bk., 150 ft. NE and SE lines of 700-ac. tract, Gage Sur., Blk. 31.
Drlg. 250 ft.

Joe E. Mills' No. 1 Mrs. W. J. Cardwell, 900 ft. from SE line, 1,200 ft. from SW line of tract, J. A. Navarro Sur.
Rigging up and S.D.

Joe E. Mills et al's No. 1 Wm. Litton, 620 ft. from SE line, 850 ft. from SW line of 320-ac. tract in Navarro Sur.
Drlg. in at 1,753 ft.; 6⅝-in. at 1,696 ft.

CAESAR—BEE COUNTY

R. A. David's No. 1 Baptist Church, center of 3-ac. church lot, F. Lewis Sur.
Dropped from report.

Falvey et al's No. 1 Gardner, 330 ft. out of NE cor. of Gardner tract.
T.D. 3,015 ft.; comp. as dry gasser; ⅛-in. choke.

Luling O. & G. Co.'s No. 4 Ruhman, 150 ft. from S line, midway between E and W lines of Blk. 13.
Drlg. 300 ft.

NORTH PETTUS FIELD — BEE, GOLIAD AND KARNES COUNTIES

Houston Oil Co.'s No. 5-B Neuhaus, B.S.&F. Sur., 660 ft. S of No. 3-B.
Sand 3,634-51 ft.; making gas and est. 25 bbls. daily; comp.

Nichols, Hindman et al's No. 1 Weldon & Lackey, 1,594 ft. NW line, 1,667 ft. SW line, 40-ac. tract, J. Gomez Sur. (Goliad County).
T.D. 4,024 ft.; dry and abd.

Sun Oil Co.'s No. 3 Scarborough, 660 ft. S of No. 1, 330 ft. from E line of lease.
T.D. 3,646 ft.; set csg.; ready to drill plug.

United Prod. Co.'s No. 46 Ray, 330 ft. E line of tract and equidistant offset Houston Oil Co.'s No. 3-B Neuhaus, W. J. Porter Sur.
T.D. 4,060 ft.; P.B. to 3,646 ft.; comp.; as dry gas well.

H. H. Weinert et al's No. 3 Grady Smith.
Location.

TULETA—BEE COUNTY

E. M. Jones' No. 3 Robinson, SE cor. of tract, Uranga grant.
T.D. 4,405 ft.; P.B. to set csg. on Pettus sand.

E. M. Jones' No. 1 Skinner & Harris, 330 ft. from N and W lines of E 80-ac. of NW of Sec. 10 Ragsley Subd. of Urangs grant.
Location.

Mills Bennett's No. 1 Tuleta Mercantile Co., 330 ft. from N and W lines of SW Sec. 10.
Rigging up.

Wrightsman Oil Co.'s No. 1 Unzicker, 330 ft. from S and E lines of quarter Sec. 6, Ragsley Subd., Uranga grant.
Location.

VON ORMY—BEXAR COUNTY

W. L. Umburn's No. 1 Bilharts, in SW cor. of tract, offsetting Strumberg well, F. Rolen Sur.
T.D. 1,266 ft.; drlg.

DRISCOLL—DUVAL COUNTY

Continental Oil Co.'s No. 3-A Clara Driscoll, 600 ft. N, 2,000 ft. E of SW cor. Sec. 23.
T.D. 3,594 ft.; swabbing trying to bring in; set 7-in. csg. at 3,371 ft.; perforated csg. from 3,311-25 ft.

EAGLE HILL—DUVAL COUNTY

Tide Water Oil Co.'s No 1 J. R. Fosyer, 1,650 ft. from S line and 165 ft. from E line of Sur. 200.
Location.

GOVERNMENT WELLS POOL—DUVAL COUNTY

Bridwell Oil Co.'s No. 8 Hahl, 825 ft. from E line, 330 ft. from S line of Blk. 28, Sur. 250.
Fishing 2,365 ft.; milling out liner.

Brown & Nessly's No. 2 Runnels, 330 ft. from S line, 250 ft. from W line of NE NW of Sur. 62.
T.D. 2,305 ft.; drlg.

Edgington & Murray's No. 1 Winch & Henne, 330 ft. from N and E lines of Blk. 15 in Sur. No. 250.
T.D. 2,370 ft.; comp. flowing by heads 200 bbls. daily.

Edgington & Murry's No. 2 Winch & Henne, 330 ft. from E line, 990 ft. from N line, Blk. 15, Sur. 250.
T.D. 810 ft.; drlg.

Felis Oil Co.'s No. 2 Norton, 330 ft. S and W lines of S half SW, Sur. 62.
Drlg. 1,410 ft.

Government Wells Oil Corp.'s No. 4 State, 330 ft. from N and W lines of Sur. 60.
Sand 2,170-90 ft.; 6⅝-in. csg. 2,170 ft.; T.D. 2,190 ft.; W.O.C.

Government Wells Oil Corp.'s No. 5 State, 330 ft. from N line, 990 ft. from W line of Sur. 60.
Location.

Government Wells Oil Corp.'s No. 6 State, 330 ft. from N line, 1,650 ft. from W line of Sur. 60.
Location.

K. F. Hasselman's No. 3 Moody, 330 ft. from W line, 150 ft. from S line of S half SW of Sur. No. 60.
Rig up.

Highland Oil Co.'s No. 1 W. P. Runnels, 330 ft. from N and W lines of SE NW of Sur. 62.
T.D. 2,361 ft.; jetting 75 bbls. daily; comp

Humble O. & R. Co.'s No. 43 Paul White, 2,970 ft. from S line, 330 ft. from W line of Sur. 58.
T.D. 2,294 ft.; comp. 10,000,000 ft. of gas, spraying oil.

Humble O. & R. Co.'s No. 44 Paul White, 1,650 ft. from S line, 330 ft. from W line of Sur. 58.
T.D. 2,302 ft.; comp. 9 bbls. hr.; on ¾-in choke.

Magnolia Pet. Co.'s No. 2 Hahl-Norton, 2,310 ft. from S line, 330 ft. from W line of Sur. 61.
Rigging up.

Magnolia Pet. Co.'s No. 10 D.C.R.C., 670 ft. from E line, 2,310 ft. from S line, Sur. 59.
Location.

Magnolia Pet. Co.'s No. 37 D.C.R.C., 990 ft. from S and W lines of Sur. 209.
10-in. csg. at 41 ft.; T.D. 605 ft.; drlg.

Magnolia Pet. Co.'s No. 15 D.C.R.C., 990 ft. S, 330 ft. N line of Sur. 59.
T.D. 2,225 ft.; comp. 10 bbls. hr.

Magnolia Pet. Co.'s No. 7 Hahl-Sutherland, 330 ft. from N and E lines of NW of Sur. 61.
T.D. 2,284 ft.; flowing 8 bbls. hr.; comp

Magnolia Pet. Co.'s No. 2 Hunt, 330 ft. S, 250 ft. W line of SE SW, Sur. 46, Bldg. derrick.

Magnolia Pet. Co.'s No. 36 D.C.R.C., 330 ft. S line, 990 ft. W line, Sur. 209.
T.D. 2,338 ft.; comp. 8 bbls. hr.

Magnolia's No. 9 Riley, 330 ft. from S line, 1,650 ft. from W line, Sur. No. 4.
T.D. 2,284 ft.; flowing 8 bbls. hr.; comp.

Magnolia Pet. Co.'s No. 8 J. O. Wilson, 330 ft. from N line, 825 ft. from W line of Sur. 134.
T.D. 2,362 ft.; coring sand 2,342-53 ft.; 6-in. csg. at 2,343 ft.

Reid and McKay's No. 11 Lundell, 1,320 ft. from W line, 660 ft. from N line of S½ NW of Sur. No. 66.
T.D. 2,244 ft.; I.P. 50 bbls. hr. on ⅝-in. choke.

Reynosa Oil Corp.'s No. 1 Duval County Ranch Co., 330 ft. from S and W lines of Sur. 262.
Drlg. 2,205 ft.

Smith & Story's No. 10 Lundell, 330 ft. from S and E lines of SE NE of Sur. 48.
T.D. 2,300 ft.; est. 200 bbls. on pump; comp.

Sun Oil Co.'s No. 72 Welderkehr, making location in Sur. No. 2.
T.D. 2,265 ft.; flowing 6 bbls. hr.; comp.

Sun Oil Co.'s No. 73 Welderkehr, 660 ft. S of No. 70 on 3,985-ac. tract in Sur. 359.
Location.

Trapshooter Reilly's No. 1-B C. W. Hahl, 150 ft. from E line, 300 ft. from S line of Blk. 23, Sur. 250.
Drlg. 2,210 ft.

E. F. Wilson's No. 1-A A. Broadbeck, 330 ft. from N and W lines of SW SE Sec. 16.
Dropped from report.

LUCAS—LIVE OAK COUNTY

Lion Oil & Ref. Co.'s No. 2 McNeil, J. Curry Sur., 660 ft. N of No. 1.
Drlg. 3,600 ft.

Houston Oil Co.'s No. 27 Cartwright, 1,000 ft. NW of No. 10 on 11,389-ac. tract in Cholehado Sur.
T.D. 3,500 ft.; I.P. 113 bbls. per day on open tubing.

Houston Oil Co.'s No. 28 Cartwright, 1,000 ft. S of No. 27, and 112 ft. E of railroad.
Derrick.

FORDYCE—HIDALGO COUNTY

Alamo Drlg. Co.'s No. 1 Ed Sullivan, 150 ft. from N and W lines of 3.25-ac. tract, in Tract 283-284, Por. 39, 1,700 ft. SE of No. 1 Lawrence.
T.D. 1,105 ft.; ready to drill plugs and comp.

Alamo Drlg. Co.'s No. 1 E. Flores, 150 ft. from N and W lines of Tract 266, Por. 38.
Location abd.

Alamo Drlg. Co.'s No. 2 E. Flores, 150 ft. from W line, 225 ft. from S line of Tract 266, Por. 38, J. of Reynosa.
Location abd.

C. C. Bishop's No. 1 F. B. Guerra, Tract 254, Por. 39, NE of discovery well.
No report.

Blocker & Lucky's No. 1 F. B. Guerra, 330 ft. from S and W lines of W½ of E 20-ac., Share 254, Por. 39.
Drlg. 350 ft.

Clements et al's No. 1 F. B. Guerra, Tract 254, Por. 39.
Derrick.

Jack Clements' No. 1 Felipe Farias, 150 ft. from N and E lines of Share 273, Por. 39, Reynosa.
Derrick.

Danvers-Harrison & Davis' No. 1 Dr. Austin, center of E 7.2-ac. of S 14.4-ac. in Share 282, Por. 39.
Location.

M. Porter Evans' No. 1 John M. Lawrence, 330 ft. from N and W lines of W 19.04-ac., Share 274, Por. 39.
Location.

Porter Evans' No. 1 David Flores, Tract 262, Por. 38.
Moving in machinery.

Heep Oil Co.'s No. 1 John Lawrence, 241 ft. from E line, 226 ft. from N line of SE 5 acres in Tract 274, Por. 39.
Location.

Heep Oil Co.'s No. 1 Guerra, 330 ft. from W line, 185 ft. from N line of 25-ac. tract in Por. 40.
Location.

Heep Oil Co.'s No. 1 T. de Flores, Tract 284, Por. 39, 1,500 ft. SE of discovery well.
Drlg. sand 2,773 ft.

Heep Oil Co.'s No. 1 Seabury, George & Taylor, 330 ft. from S and E lines of SE 25.9-ac. of Tract 254, Por. 38.
Drlg. sand 2,755 ft.; prepare to set csg.

John Deering et al's No. 1 John C. Engelman, 400 ft. from S and W lines of Lot 3, Blk. 79, Mestenas Tract.
Spudded and set surface csg.

Moncrief & Showers' No. 1 F. B. Guerra, 330 ft. from N and E lines of NE of W 40 acres of S 80 acres of W½ of Share 254, Por. 39, J. of Reynosa.
T.D. 2,765 ft.; ready to drill plugs.

Reynosa Oil Co.'s No. 1 Guerra, 330 ft. from W line, midway between N and S lines of NW 10-ac. of SW 40 acres of Tract 254, Porcion 39.
Rigging up.

Reynosa Oil Co.'s No. 1 P. S. Rivas, 330 ft. from N line, 258 ft. from W line of N 30-ac., Tract 393, Por. 39.
Location.

Ed Sullivan's No. 1 E. B. Guerra, center of NE 10.77 acres of SW 40.7 acres of Tract 254, Por. 39.
Location.

Van Dresar et al's No. 1 W. R. Jackson, 330 ft. from N and W lines of 92-ac. tract, Por. 38-39-40, Blk. 278.
Location.

Otto Woods' No. 1 F. B. Guerra, 1,700 ft. NW of discovery well.
T.D. 2,715 ft.; coring.

Otto Woods' No. 2 F. B. Guerra, 600 ft. due N of discovery well, Tract 254, Por. 39.
T.D. 200 ft.; set surface csg.

Otto Woods' No. 2 John Lawrence, 330 ft. from N and E lines of W 40 acres of Tract 274, Por. 39.
Location.

Otto Woods' No. 3 John Lawrence, 330 ft. from S and W lines of W 40 acres of Tract 274, Por. 39.
Rigging up.

Otto Woods' No. 4 John Lawrence, 330 ft. from E line, 250 ft. from S line of W 40 acres, Tract 274, Por. 39.
Rigging up.

Windsor Oil and Circle W Oil Co.'s No. 1 J. H. Doss, 320 ft. from N and W lines of 58 acres or in Tract 278, Por. 40.
Location.

JACOB POOL—McMULLEN COUNTY

Benson et al's No. 9 John Stix, midway between No. 1 and No. 6, Blk. 40, Sur. 7.
No report.

E. W. Hopkins' No. 1 H. L. Lark, 160 ft. from N and W lines of W half of Blk. 30, Scrugham Sur.
T.D. 930 ft.; coring.

Kennon's No. 3 Lark, 660 ft. from N line, 330 ft. from E line of E½ of Blk. 15, Scrugham Sur.
T.D. 1,050 ft.; comp. 10 bbls. per day.

C. R. Kennon's No. 4 H. L. Lark, 175 ft. from S line, 175 ft. from W line of E 20-ac. of Blk. 15 of Scrugham Sur.
Location.

C. R. Kennon's No. 5 H. L. Lark, 175 ft. from S and E lines of E half of Blk. 15 of Scrugham Sur.
Location.

Loma Oil Co.'s No. 23-A Jacob, 660 ft. S of No. 11-A, Sur. No. 8.
No report.

Slemp & Hockaday's No. 1 Lark, 1,320 ft. N of No. 3 Longhorn, in Scrugham Sur.
T.D. 1,032 ft.; comp. 8 bbls. daily.

Stewart & Holding Co.'s No. 3 Jacob, 660 ft. S and 660 ft. E of No. 2, John Fadden Sur.
Moving in.

Ormsby & Stewart's No. 4 Jacob, one-half mi. S of No. 3.
Drlg. 900 ft.

Texlo Oil Co.'s No. 2 L. Jacob, 660 ft. N of No. 1 Benham Sur.
Location.

R. P. Whitefield's No. 1-A Jacob, 1,500 ft. from W line, 1,200 ft. from S line of SW of Sur. 17.
T.D. 922 ft.; drlg. plugs; top shell 914 ft.

SINTON—SAN PATRICIO COUNTY

Heep Oil Corp.'s No. 2 R. Welder, 466 ft. from S line, 2,000 ft. from E line of Adeline Welder tract in Victor Loupsey Sur.
Derrick.

Heep Oil Corp.'s No. 4 R. Welder, 466 ft. from S and W lines, 300-ac. tract, Victor Loupsey Sur.
Drlg. sand 6,667 ft.

JEFFRIES-LAMBETH—STARR COUNTY

Weekly Oil Co.'s No. 2 S.C.C.C., 330 ft. from S and W lines of Blk. 19, Porcion 39.
Drlg. 750 ft.

LOS OLMOS—STARR COUNTY

J. P. Kennedy's No. 8 Kelsey-Bass, 200 ft. SE of No. 7 Kelsey-Bass in Blk. 7 of Porcions 75, 76 and 77.
Location.

CUEVITAS POOL—STARR COUNTY

Sun Oil Co.'s No. 5-C M. Guerra & Son, 1,320 ft. NE of No. 4-C La Sacatosa grant
Location.

AGUA DULCE—NUECES COUNTY

Clymore Prod.'s No. 3 Ingram, 660 ft. from E and S lines, Sec. 6, Blk. 6, Peters Subd.
Derrick down.

Clymore Prod. Co.'s No. 2-D Ingram, 660 ft. from S and W lines of Lot No. 7, Sec. 6, Peters Subd. No. 2.
Location.

Clymore Prod. Co.'s No. 1-C Ollie Purl, 660 ft. N and E lines of Lot No. 2, Sec. 7, Peters Subd. No. 2.
Moving in rig.

SAXET—NUECES COUNTY

Southern Mineral Corp.'s No. 3 Ocher, 3,159 ft. N of S line and 417 ft. from line of Ocher 202.52-ac. tract in Sec. 8.
Location.

Southern Mineral Corp.'s No. 4 Ocher, 1,320 ft. S line and 417 ft. E line of Ocher 202.52-ac. tract in Sec. 8.
Location.

WEST COLE POOL—WEBB COUNTY

American Liberty Oil Co.'s No. 1-B Bruni estate, 418 ft. from NE line, 260 ft. from NW line of Blk. 13.
T.D. 3,432 ft.; W.O.C.; sand 3,407-32 ft.; set 7-in. csg. at 3,406 ft.

American Liberty Oil Co.'s No. 5-A Bruni Est., 418 ft. NE, 260 ft. NW lines, Blk. 49, Foltz Subd., Arispe grant.
T.D. 3,419 ft.; W.O.C.; sand 3,406-19 ft.; set 7-in. csg. at 3,406 ft.

Herman Brown's No. 2 Bruni Est., 418 ft. from NE line, 260 ft. from SE line of Blk. 8, Foltz Subd., Sur. 5, Arispe grant.
T.D. 3,430 ft.; W.O.C.; sand 3,409-30 ft.; set 7-in. csg. at 3,409 ft.

Cole Pet. Co.'s No. 36 Benavides, Sur. No. 1, Callaghan homestead tract.
T.D. 3,990 ft.; P.B. to 2,300-ft. sand.

O. W. Killam's No. 27 Bruni, 1,209 ft. from SW line, 2,246 ft. from SE line of Sur. No. 6, Arispe Grant Sur.
T.D. 3,411 ft.; W.O.C.

Kalmore's No. 1-B Bruni, 330 ft. to W line, 418 ft. SW line, Blk. 33, Sur. 5, Adams Subd., Mariano Arispe grant.
No report.

O. W. Killam's No. 25 Bruni (formerly No. 1 Kulmer), Sur. 4, Adams Subd., Mariano Arispe grant.
T.D. 3,424 ft.; coring; whipstock 3,401 ft.

South Texas Oil Co.'s No. 13 Laurel, 800 ft. from W line, 150 ft. from S line, Blk. 4, Sur. 270.
Drlg. 1,055 ft.

Sun Oil Co.'s No. 1 Bruni Est., 418 ft. NE line, 260 ft. SE line of Blk. 4, Sur. 5, Arispe grant.
Drlg. 2,555 ft.

United Prod. Corp.'s No. 8 Brennan Benavides, Mariano Arispe grant; common cor. Blks. 332, 333, 348, 349.
T.D. 3,760 ft.; cored sand 3,720-60 ft.; abd.

TAYLOR—WILLIAMSON COUNTY

Jackson et al's No. 1 Bozarth 95.8-ac. tract, 2,000 ft. from NW line, 3,500 ft. from NE line, S. Miller Sur.
Drlg. 1,665 ft.

G. L. Rowsey, trustee's No. 1 W. Heap, 1,100 ft. from SE line, Bushy Creek, 200 ft. from SW line of 92.3-ac. tract in H. White Sur.
T.D. 905 ft.; comp. making 3 bbls. daily.

R. Wilder's No. 1 W. I. Cain, 200 ft. from N line, 160 ft. from E line of S half of Cain 100-ac. tract in S. Miller Sur.
No report.

JENNINGS—ZAPATA COUNTY

Texas Co.'s No. 56 Whitehead, 672 ft. from SE line, 18,433 ft. from SW line of Cerrito Blanco grant.
T.D. 1,100 ft.; coring.

RANDADO—ZAPATA AND JIM HOGG COUNTIES

Sulgrave Oil Co.'s No. 1-A Maryland Trust Co., 664 ft. from S line, 662 ft. from E line of Tract A, Blk. 29, Sur. 214.
Rigging up.

Seventeen Locations for New Operations in the Louisiana-Arkansas-East Texas Division

By J. R. CRUMPTON
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Oct. 15.—Drilling activity in this division continued at a brisk rate as reflected by the new locations staked during the past week. The North Louisiana and Arkansas districts continue to lead in new operations, the former reporting 10 and the latter 6, and one wildcat staked in Cass County, East Texas, made a total of 17, Mississippi being the only district missing from the list. In this division the importance is not attached to the number of locations reported each week, but rather to the number of key wildcats in widely separated areas on which thorough geological and geophysical surveys have been made.

NORTH LOUISIANA

An important test, located on a geophysical block of 4,500 acres in Natchitoches Parish, is Benedum & Trees' No. 1 Carver estate in Section 6-8-7. The test is located about 4 miles southeast of the town of Natchitoches and is scheduled to drill to 5,000 feet. The fourth wildcat to be started in Bienville Parish recently is Duncan & Fuller's No. 1 J. Hutton in Section 4-18-7, located on a block of approximately 10,000 acres a few miles north of the town of Gibsland. The hole is being drilled in search of the Blossom sand, but if this fails will probably be carried to the Woodbine around the 3,800-foot level. The geology on the block was worked out by D. L. Perkins, independent consulting geologist of Shreveport. The block was assembled a few months ago by the late F. M. Fuller, widely known independent operator of Shreveport, who died a few weeks ago about time the work was finished. Six miles south of the town of Plain Dealing in Bossier Parish, W. A. Kirkland, trustee, is rigging up on No. 1 Jarrett & McKeller in Section 3-21-13. This test is in the vicinity of a wildcat, brought in about 15 years ago which flowed at the rate of 1,500 bbls. per day for two days, went dead and was never revived. A number of tests drilled in the immediate vicinity also failed to get production. In Winn Parish, the Red River Refining Co. is moving in rig on its No. 3 Tremont Lumber Co., Section 26-11-1w, the third shallow test in this area during the year, the two previous ones having been abandoned as dry.

The six other locations in the North Louisiana district were divided among three parishes. In a semiproven territory in Red River Parish, near the De Soto Parish line, the Circle W & Windsor Oil Co.'s No. 1 Jenkins estate, Section 14-12-11, has set 10-inch casing at 60 feet and drilling at 1,200 feet. The second test for this parish for the week, J. S. Tuffree's No. 1 T. A. Wilkinson, Section 11-12-11, is rigging up. The remaining new operations were in proven gas or oil fields in Caddo and Bossier Parishes.

Of the hot drilling wildcats, two are being watched closely in Bienville Parish. Benedum & Trees' No. 1 J. W. Sprawls, Section 17-5-6, logged the base of the chalk at 2,438 feet and is temporarily shut down for rig repairs at 3,310 feet in sandy shale. No report has been received on the Blossom contact from this well at this writing. T. J. James' No. 1 Harrison, Section 2-16-6, located on a large block in Bienville, has set surface casing at 306 feet.

The Producers Oil & Gas Co.'s No. 1 W. H. Werner, Section 7-17-11, about 2 miles northeast of the Sligo gas field, Bossier Parish, tested 200,000 feet of gas from 3,984 feet. The hole will probably be deepened in an effort to increase production. Two wells are being drilled within the proved limits of the field by the United Gas Public Service Co. and both will be carried to the Trinity horizon. In the northeastern part of Red River Parish, near the Bienville Parish line, C. M. Cope and others' No. 1 Thomas, Section 34-13-8, report a show of oil from the chalk, and 7-inch casing has been set at 1,609 feet with the bottom of the hole at 1,630 feet. The well is bailing to test and if results are not satisfactory, acid will be used in the chalk formation. Since the widespread use of acid in the chalk rock producing fields of Zwolle and Converse began about two years ago, many wildcats have resorted to this process upon encountering a slight show in this formation, especially when encountered at a shallow depth. The Century Oil & Drilling Co. has treated its No. 1 Morton, Section 27-11-14, De Soto Parish, with acid with the total depth at 1,620 feet in chalk. The well is 6 miles northwest of the old Benson area.

The North Louisiana district completed five wells, one gas, one oil well and three dry holes. The Texas Co.'s No. 4 Noel fee, Section 4-18-16, Blanchard Field, Caddo Parish, is estimated at 2,000,000 feet of gas from 915 feet. The oil producer was from the Converse Field, Sabine Parish, Gerhig Oil Co.'s No. 3 Burkett, Section 9-9-13, pumping 40 bbls. daily from 2,041 feet. The northeastern part of the Zwolle Field furnished one dry hole and two wildcats were dusters. Of the latter, G. D. Davis' No. 1 Louisiana-Central Lumber Co., Section 14-11-3e, Caldwell Parish, has been shut down for some time and was abandoned at the shallow depth of 1,850 feet. In the northern part of Union Parish, a few miles south of the southern tip of the El Dorado Field, Lawson & Leavell's No. 1 Gunter, Section 14-23-3w, was dry and abandoned at 3,413 feet.

ARKANSAS

No rank wildcats were included in the new locations in this district, all six of them being on the flanks of proved territory. W. H. Harvey has derrick up on No. 2 Allen, Section 18-19-24, in the old Bradley Field, Lafayette County. The Magnolia Petroleum Co. has set 12½-inch surface casing at 236 feet and drilling at 2,012 feet on its No. 5 Olivet, Section 3-16-26, in the Miller County Field, east of Texarkana. Another test in this area, J. T. Parker's No. 2 E. H. Beck, Section 34-15-26, has derrick pattern on location. On the flank of the Stephens Field in Nevada County, O. F. Whittaker has started his second well on the J. Wesley lease in Section 2-15-20. In Union County, Walter A. Graves is rigging up on his No. 1 Stout Lumber Co., Section 18-16-14, and Short & Hayes is rigged up on their No. 1 J. W. Taylor in Section 10-17-14.

During the past two weeks, the Arkansas district has reported five completions consisting of three oil wells and two dry holes. An interesting wildcat in Bradley County, Seton Oil Co.'s No. 1 C. H. Murphy, Section 34-15-10, was dry and abandoned at 3,510 feet. Lafayette County registered another failure with the abandonment of R. H. Neely's No. 1 Flemming, in Section 31-18-25, at 3,570 feet. The Miller County Field added two good pumpers. Magnolia Petroleum Co.'s No. 4 Olivet, Section 4-16-26, is pumping 140 bbls. daily from 2,947 feet, and John Wrather's No. 1 E. H. Beck, Section 34-15-26, is a 300-bbl. pumper from 2,931 feet. This well experienced much trouble in running casing, but finally set a string of 5 3/16-inch at 2,928 feet with 3 feet of sand below. In the Urbana Field, Union Parish, McCreslenn Oil Co.'s No. 2 G. Norman, Section 3-18-13, was completed pumping 150 bbls. daily from 3,074 feet.

Northwest of the Miller County Field, King Oil Corp.'s wildcat, No. 1 C. H. Schroder, Section 24-14-28, is arranging to make a drill stem test of a gas sand encountered at 2,587 feet. It is thought that the gas show is coming from the top of the Trinity horizon. In the old Bradley Field, Lafayette County, where a limited number of wells produced until shut in a few years ago, W. H. Harvey's No. 1 Allen, Section 18-19-24, is standing 2,000 feet in oil from a total depth of 2,781 feet. The well is being equipped with standard rig to pump. J. S. Carnes' No. 1 D. Scott, Section 18-14-18, Ouachita County, cored salt water sand at 2,052 feet and plugged back to 1,835 feet.

MISSISSIPPI

This district failed to report either a completion or new location during the past seven-day period. The drilling report shows few active operations, a majority of the wells being shut down for various reasons. The United Gas Public Service Co. is rigging up on its No. 1 Greene County School Land in Section 16-1n-5w, Greene County, and in Bolivar County White & Jones has rig up on their No. 1 Ballou in Section 17, Township 24n. In Monroe County, near the old Amory gas field, P. J. McAlpine's No. 1 Crook, Section 4-13s-18w, is arranging to set 8-inch casing at 720 feet. This is an old well drilling deeper, abandoned at a shallow depth by the Buffalo Oil & Gas Co. in March, 1928. McAlpine's second test in that area, No. 1 Frank Rye, Section 15-15s-17w, is drilling at 1,050 feet, having logged the top of Paleozoics at 595 feet.

ALABAMA

Only one test is active in this district. The Rice Oil & Gas Co.'s No. 1 Oakley estate, Section 9-3n-29e, Houston County, is drilling in sand, believed to be the Eutaw, at 2,410 feet. The De Soto Oil & Gas Corp.'s No. 1 Gardner, Section 22-15s-16w, is shut down at 4,182 feet.

Estimated Production

Estimated daily gross production all companies week ending October 12:

NORTH LOUISIANA

Bellevue	455
Caddo, light	4,440
Caddo, heavy	1,565
Converse	1,670
Cotton Valley	485
DeSoto and Red River	1,390
Elm Grove	410
Haynesville	3,730
Holly	165
Homer	2,700
Pleasant Hill	200
Sarepta-Carterville	600
Urania	3,250
Zwolle	2,675
Total North Louisiana	23,735

SOUTH ARKANSAS

Champagnolle	1,090
El Dorado	2,400
Lisbon	365
Miller County	1,520
Nevada	900
Smackover, light	2,325
Smackover, heavy	19,080
Stephens	625
Urbana	2,340
Total South Arkansas	30,645

Wildcat Operations in Louisiana-Arkansas

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

AVOYELLES PARISH

Bell Oil Co.'s No. 1 Woodley, 330 ft. S and W NE cor. NW Sec. 11-2n-5e.
Washing to bottom 1,700 ft.

BIENVILLE PARISH

Benedum & Trees' No. 1 J. W. Sprawls, 660 ft. S, 330 ft. W, NE cor. NW NE Sec. 17-15-6.
S.D.; repair rig 3,310 ft.

T. L. James' No. 1 Harrison, SW cor. NW NW Sec. 2-16-6.
12-in. 306 ft.

Saline Drlg. Co.'s No. 1 Pardee, Sec. 27-14-6.
Set 10-in. 142 ft.

BOSSIER PARISH

Bossier O. & G. Co.'s No. 1 Sherrill, 300 ft. S and W, NE cor. Sec. 13-9-12.
S.D.; W.O. 2,261 ft.

Goldman & Sklar's No. 4 Caplis, 1,527 ft. S, 1,482 ft. E, NW cor. Sec. 25-16-12.
Rigging up.

Howard & Baird's No. 1 Gold, 150 ft. S and E, NW cor. Sec. 36-20-13.
S.D. for water 1,126 ft.

McKinney & Stewart's No. 1 Nattin, 470 ft. W, 630 ft. S, NE cor. Sec. 22-22-14.
S.D. 2,973 ft.

L. M. Moffitt, tr.'s No. 1 W. H. Martin, 330 ft. S and E, NW cor. SW NW Sec. 2-21-12.
Rigging up.

Producers O. & G. Co.'s No. 1 Weiner, 660 ft. N and W, SE cor. Sec. 7-17-11.
Tested 200,000 ft. gas, 3,984 ft.

United Gas Pub. Ser. Co.'s No. 2 Skannell Unit, 990 ft. N, 660 ft. W, SE cor. Sec. 14-17-12.
Drlg. 3,800 ft.

United Gas Pub. Service Co.'s No. 1 Herold Unit, 50 ft. S and W, NE cor. SW SE Sec. 13-17-12.
Drlg. 3,181 ft.

CADDO PARISH

Ark.-La.-Tex. O. & G. Co.'s No. 1 Simon, 330 ft. N and E, SW cor. Sec. 15-20-15.
Set 4½-in. 2,148 ft.; T.D. 2,236 ft.

W. T. Bell et al's No. 1 Bostick, 1,320 ft. E, 660 ft. N, SW cor. Sec. 12-22-16.
S.D. for water, 2,540 ft.

S. Bendor's No. 1 Starr, 150 ft. N, 195 ft. E, SW cor. SW Sec. 26-20-16.
W.O.S.R. 2,258 ft.

Burkett O. & G. Co.'s No. 1 Lindholm, 400 ft. S and E, NW cor. NE SE Sec. 15-17-14.
S.D. 1,046 ft., repairing rig.

Capitol O. & G. Co.'s No. 1 Noel Est., 300 ft. S and E, NW cor. NE Sec. 12-20-16.
S.D. 450 ft.

O. L. Hickman's No. 1 fee, 1,046 ft. S, 1,700 ft. E, NW cor. Sec. 36-17-15.
Rigging up.

A. D. King, tr.'s No. 1 Roach, 641 ft. E, 375 ft. N, SW cor. SE Sec. 4-14-16.
S.D. 2,128 ft.

H. E. Phillip et al's No. 1 Surrey, 330 ft. S and E, NW cor. NE NE Sec. 3-20-16.
Arranging set csg. 930 ft.

Shreveport Oil Corp.'s No. 1 Muslow, 412 ft. N, 560 ft. E, SW cor. NW Sec. 4-20-15.
W.O.S.R. 2,182 ft.

CALDWELL PARISH

Terrell & Price's No. 1 La. Central Lbr. Co., 300 ft. N, 200 ft. W, SE cor. NW NE Sec. 18-11-3e.
T.A. 3,485 ft.

CATAHOULA PARISH

T. R. Hincy's No. 1 La. Central Lbr. Co., Sec. 32-9-6e.
Set 8-in. 154 ft.

DE SOTO PARISH

L. H. Alderson's No. 1 Peek, SE cor. NW NE Sec. 25-11-13.
S.D. for wtr. 3,030 ft.

Bayou Pierre Oil Co.'s No. 1 B. Y. Wemple, C SE NE SW Sec. 14-12-11.
S.D. for fuel 2,149 ft.

Century O. & Drlg. Co.'s No. 1 Morton, 300 ft. N and E SW cor. SE NE Sec. 27-11-14.
Used acid; W.O. 1,620 ft.

Jack Clarke's No. 1 Moore, 330 ft. S and W NE cor. NW Sec. 1-12-15.
S.D. 1,675 ft.

W. T. Coleman's No. 1 Rambin Est., 700 ft. S and E, NW cor. SW SE Sec. 13-12-12.
S.D. 50 ft.

Dempsey & Manziel's No. 1 Thigpen, 375 ft. S, 330 ft. W, NE cor. SW NE Sec. 33-13-13.
Coring 1,710 ft.

(Continued on Page 84)

M. I. W. Steel Rig Fronts

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New Schedule of Proration Is Set in Michigan; Important Wildcat Well in Isabella County

By PAUL A. ELLIOTT
Staff Correspondent, Michigan Fields

MUSKEGON, Mich., Oct. 15.—The Michigan proration committee at a special session was forced to reduce the minimum exemption from 70 to 50 bbls. allowing an increase in the allowable percentage above the base from 2 to 5 per cent. By the change, made just one week after the announcement of the new proration schedule for October, 70 bbls. exemption and 2 per cent of all potential above the minimum, the committee kept a promise not to lower the proration below 5 per cent. The minimum of 50 bbls., however, put the new schedule into effect in the Greendale, Vernon and Leaton Pools as well as the Porter Township Field where it has been in effect virtually from the beginning.

Under the new totals as of October 8 the 952 wells are granted a daily potential of 177,075 bbls. with daily runs estimated at 30,967 bbls. compared with the Federal allowable of 29,300 bbls. a day. The difference represents underruns expected to be cleared up this month.

Comparatively few new developments of importance were recorded last week which saw the discovery of a commercial Dundee well in a Denver Township area between the Leaton and Chippewa Fields of Isabella County, a good show in a Mount Haley Township wildcat drilled into the Dundee and the discovery of a show of oil in the upper Traverse in a Mills Township, Ogemaw County, wildcat.

Two other minor wildcat developments, the completion of a 30-bbl. well in Oregon Township, Lapeer County, and a 10-bbl. pumper in Birch Run Township, Saginaw County, outshone any developments in the major fields.

New Wildcats

Most important of the new wildcat discoveries is McClanahan Oil Co.'s No. 1 Maria T. Sweeney, NE NW NE Section 33-15n-3w, Denver Township, Isabella County, which topped the Dundee limestone at 3,574 feet, hit the pay at 3,616-26 feet, completing drilling at this depth with an initial flow of about 250 bbls. It is 2 miles east and a little south of the Leaton Pool in a territory between Leaton and Chippewa which was indicated good for new production last spring when the same company completed its No. 1 Stanley Demski in Section 28, Denver Township, as a 40-bbl. well. The Sweeney well is about a mile south of the Demski.

Renewed interest has been shown recently with eight wells either drilling or on location in different sections of the county. Leaton Pool was opened in 1931 when Michigan Gas & Oil Corp.'s No. 1 P. J. Marthey, Section 19, Denver Township, made 550 bbls. initial. McClanahan Oil Co. now is expected to start drilling its No. 1 Wonser in Section 3.

W. Hunter Atha's No. 1 Thomas Moran, C SE Section 28-13n-1e, Mount Haley Township, Midland County, another wildcat, struck a good show of oil and gas 30 feet in the Dundee which filled up about 2,000 feet.

The Moran test is 5 miles east of the Porter Pool and is considered the possible discovery of a new Midland County pool. Oil and gas were encountered at 3,408 feet. It is the first of six Mount Haley Township projects to strike oil or gas in any considerable quantity. T. K. Buzzard had a show in the Berea in his Sias test in Section 4. Projects in Sections 3, 11, 16 and 34 have been dry and abandoned.

Isabella County

Wittmer Oil & Gas Co. is drilling two tests in the vicinity of wells drilled several months ago near the village of Rosebush where indications of another new field were discovered several months ago by this company. One is No. 1 Merrill D. Dunn, and the other No. 1 McCloud.

Atha Oil Co.'s No. 4 Edward Little, NW SW SE Section 31-16n-4w, Vernon Township, was nearing the Michigan sand at more than 1,100 feet, while Mellon-Pollock Oil Co. and others' No. 2 Icem C. Slentz, NW SW SW Section 23, Vernon Township, is nearing the Dundee. One small gasser was completed when the Michigan Cities Natural Gas Corp. brought in No. 1 Lueder-Cook, C SW NW Section 11-14n-6w, with an open flow of about 1,000,000 feet a day from the Michigan gas sands.

Bundy Hill Oil & Gas Co.'s No. 1 W. Russell, NW NE NE Section 6, Broomfield Township, failed to strike gas in the Michigan gas sands but is not deepening. Albaugh Brothers' No. 1 Ray Aldrich, C NE SE Section 22, was nearing the gas sand, and Chippewa Oil & Gas Co.'s No. 1 W. Wook, C NE SW Section 2, was driving pipe.

D. F. Jones, who last week drilled his No. 1 Byron Youman, C SE NW Section 32-15n-6w, Sherman Township, Isabella County, into the Dundee as a duster decided to abandon it. Youmans-Wyckoff Oil & Gas Co.'s No. 1 Roy Terry, C SW SE Section 30, Sherman Township, is drilling to the Dundee after failure in the Michigan series. Hal-Be-Oyle & Gas Corp.'s No. 1 O. D. Leiter, Section 33, is starting.

Ogemaw County

New interest was aroused in Ogemaw County where McClanahan Oil Co.'s No. 1 C. Canard, NW NW NE Section 22, Mills Township, had a good show of oil in the upper Traverse. Exact amount could not be measured because of water content. The Canard test is 4 miles south of C. A. Perry's No. 1 Wobig heirs, recently completed as a commercial producer. Two other Ogemaw County tests were nearing the Dundee, W. C. Mee's No. 1 Gibbs, SW SE SW Section 30, Mills Township, and McClanahan Oil Co.'s No. 1 Boutell, SW SW SW Section 24, Ogemaw Township, Ogemaw County.

M. J. Ingold's No. 1 Ed Stevenson, C SE NE Section 24, Ogemaw Township, will make about 25 to 50 bbls. on the pump although it was estimated considerably larger when first drilled. Three wells drilling to the Dundee after failure to strike pay in the Traverse include Melling Oil & Gas Co.'s No. 1 State of Michigan, SE SE NW Section 6, Ogemaw Township; Muskegon Development Co.'s No. 1 Frank Estey, NW NW NW Section 28, West Branch Township, and Theodore Oil Co.'s No. 3 Ogemaw Country Club, Section 20, West Branch Township, the last originally an upper Traverse well.

Five rigs are being set up for new drilling projects in the Ogemaw area.

Other Fields

Smith Petroleum Co.'s No. 1 David E. Soule, NW SE SE Section 20, Birch Run Township, Saginaw County, made 10 bbls. on the pump after topping the Berea at 1,527 feet, the pay at 1,528-32 feet, total depth, and swabbing 28 bbls. initial. Two others are drilling in Saginaw County, one in Chapin and the other in Albee Township.

George Henry Flynn Oil & Gas Corp. completed another producer in the newly developing field in Lapeer County, when No. 2 Herbert Brannick, SW NW NW Section 9, Oregon Township, Lapeer County, came in for 30 bbls. a day initial.

Porter—Midland

The largest increase in crude production came in Porter Township, Midland County, where Strange & Fortney's No. 7 J. W. Campbell, SW NW SE Section 18-13n-1w, was increased about 2,000 bbls. a day in potential by acid treatment. It was a 75-bbl. well when brought in recently. Gordon Oil Co.'s No. 3 Phineas Baxter, Inc., also was increased to a 750-bbl. producer by acid treatment.

Two projects are nearing completion in the Dundee: McClanahan Oil Co.'s No. 1 C. Hoyt, SW SW SE Section 18, cased at 3,389 feet and ready to drill in and James P. McHugh, trustee's No. 1 Breckenridge State Bank, NW NW NW Section 29, shut down on top of the Dundee.

Western Michigan

West Michigan Consumers Co.'s No. 10 Fred Figge heirs, NW SW Section 9-10n-16w, Muskegon Township, Muskegon County, was drilling below 1,900 feet after failing to encounter oil or gas pay in commercial quantities in the lower Traverse. Deepening will be continued to the Monroe. The company now has about 2,250,000 feet of gas available to meet an average sendout of 700,000 feet a day as utilized during September by greater Muskegon industries.

A. S. Cochran is drilling at more than 700 feet in his No. 3 F. J. Durham, S SW Section 15-10n-16w, Muskegon Township, in the southeast extension of the old Muskegon Field. Lima Oil Corp. is starting a new test in the southeast extension, No. 1 W. R. Angell and Harry C. Spillman, NE SW NE Section 22-10n-16w.

John B. Northcott is rigging up for his No. 2 Jane Pinder in Section 31-15n-16w, Elbridge Township, Oceana County. H. C. Nelson is acid treating several of his wells in the Oceana Field.

Montcalm—Mecosta

Oil and gas show encountered two weeks ago in the Mammoth Petroleum Corp.'s No. 1 Lucy E. Thomas, NW SW SE Section 11-12n-6w, Home Township, Montcalm County, at about 3,504 feet, or in the Monroe formation, was plugged off during an attempt to obtain a water shutoff. Operators are drilling out the plug to the Monroe or deeper believing they have not yet hit water in the Monroe. Pure Oil Co. also is plugging back its No. 1 Della Tenney, SE SE SE Section 3, Home Township, from a total depth of 3,544 feet in the Dundee formation to test the upper Traverse. Five other Montcalm County tests in Day, Home, Pierson and Richland Townships are active.

Colmur Oil & Gas Co.'s No. 1 State of Michigan, C NW NE Section 24-14n-9w,

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Central West Fields Gain in Completions; Fourteen Are Reported in Kentucky

By GEORGE A. WHITNEY
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Oct. 15.—The Central West Field showed a nice gain in new wells during the week. In the Lima Field of northwestern Ohio John Doblinger's No. 2 Sol Betts farm, Section 8, Monclova Township, Lucas County, produced 10 bbls. in 48 hours on the pump. It is getting its oil at 1,292 feet. His No. 2 on the Dan Knauss farm, same section, was drilled to 660 feet and abandoned.

In Wyandot County, New Oil Co.'s No. 7 Miner Kohler farm, Section 20, Crane Township, is shut down at 200 feet. Wood and others' No. 2 Edward Orton farm, Section 22, Pitt Township, is shut down at 200 feet. Plank Oil Co.'s No. 2 Oscar Berg farm, Section 28, Tymochtee Township, showed 3,000 feet of gas at 1,368 feet, and probably will go deeper.

In Hardin County, Huffman and others' No. 1 Anna Scharf farm, Section 18, Pleasants Township, is at 1,340 feet.

Claridon Oil Co.'s No. 1 Barnhart farm, Section 11, Claridon Township, Marion County, is shut down at 2,180 feet. In Sandusky County, Montgomery and others are fishing at 2,530 feet on the Hetrick farm in Rice Township.

CENTRAL OHIO

The Central Ohio Field had a busy week with 24 completions, 3 oil wells with 29 bbls. production, 7 dry holes and 14 gas wells.

In Athens County Ohio Fuel Gas Co.'s No. 5-5,905 Fred Moore farm, in Fractional Section 6, Lodi Township, is a gas well at 1,706 feet. A. D. Townsend's No. 1 Leo Douglas farm, in Fractional Section 23, same township, is a gas well at 634 feet. In Lee Township Ohio Fuel Gas Co.'s No. 1-4,653 on the S .E. Searle farm, Section 12, is a dry hole at 1,286 feet.

In Coshocton County, Kuntz-Hulse, Inc., is drilling No. 4 French Allen farm, in Newcastle Township.

In Ashland County, Ohio Fuel Gas Co.'s No. 1-5,845 on the W. E. Moore farm, Section 20, Jackson Township, is dry. In Perry Township Robison and others are drilling No. 8 Henry C. Young farm, Section 22, Lake Township, and Gold Crown Oil & Gas Co. is drilling No. 4 Horn farm, Section 21, same township.

In Medina County, Ohio Fuel Gas Co. is drilling No. 1-5,867 on the John W. Selzer farm, Section 34, Montville Township. In Harrisville Township, Ohio Fuel Gas Co. is drilling No. 1 George Buffham farm, on Lots 40 and 50. In Liverpool Township, J. H. Wilt is drilling No. 1 John W. Lawrence farm, Section 15. Ohio Fuel Gas Co. has a location for No. 1-5,854 Swastika farms, and a rig for No. 1-5,916 on the Carrie A. Bell farm, in Section 25, Guilford Township. Ohio Fuel Gas Co. is drilling No. 1-5,885 on the J. C. Treman farm, Section 17, Granger Township. Same company is drilling No. 1-5,842 David E. Pike farm, Section 6, Homer Township. Same company is drilling No. 1-5,842 on the John J. Gabris farm, Section 18, Lafayette Township.

In the Cleveland area, McMillan is

(Continued on Page 81)

Twenty-Two Completions in the Eastern Fields; Ritchie County, W. Va., Is Unusually Active

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Oct. 15.—There were 22 completions and five dry holes in the lower eastern fields during the week. Of these 14 were producers with an initial production of only 110 bbls. and eight were gas wells, only one showing for more than 1,000,000 feet a day. Ritchie County was unusually active but most of the producers were in Southeast Ohio.

SOUTHEAST OHIO

In Coshocton County, Southeast Ohio, Ohio Fuel Gas Co.'s No. 3, being drilled on the Victor Scheibe farm in Section 11, Clarke Township, proved dry. It reached the Clinton sand at 3,631 feet.

In Guernsey County, Ralton Oil Co. completed a second test on the J. E. Miller farm, NE Section 5, Monroe Township, in the Niagara lime at a depth of 3,669 feet. It produced 30 bbls. the first day, natural, and has not been shot.

In Licking County, Blue Rock Oil & Gas Co. completed No. 6 on the Walter Hoyt farm in Section 17, Perry Township, in the Berea sand at 668 feet. It produced 12 bbls. the first day after shot and will make about a 4-bbl. pumper.

In Medina County, Oko Oil & Gas Co. completed No. 46 on the Jesse McVicker farm, northwest part of Lot 2, Chatham Township. It was drilled in the Berea grit at 391 feet and produced 3 bbls. the first day after shot.

In Morgan County, Charles D. Mosher and others completed No. 6 on the Charles Yarnell farm, NW Section 1, Windsor Township, in the Cow Run sand at 558 feet. It produced 1 bbl. the first day, natural, and 3 bbls. a day after shot.

In Muskingum County there were two completions. In Jackson Township, NE Section 6, Pure Oil Co. completed No. 6 on the Floyd McKee farm in the Clinton sand at a depth of 3,160 feet. It produced 10 bbls. the first day after shot. In Section 18, Muskingum Township, Ohio Fuel Gas Co. completed a test on the Alley Mattingly farm in the Clinton sand at a depth of 3,320 feet. It is a gas well gauging about 200,000 feet a day, initial.

In Washington County, Frances R. Meyer completed No. 17 on the Ada May Hall farm, SW Section 12, Newport Township, in the First Cow Run sand at 740 feet. It produced 2 bbls. the first day, natural, which was doubled by shot. In Wesley Township, 1 mile south of Dale in Section 26, R. W. Turney completed No. 3 on the John Brower farm in the Peeker sand at 485 feet. It is showing for a 2-bbl. pumper after shot. In the northwestern part of Lot 1,081, Palmer Township, G. E. Morris and others completed No. 32 on the Effie M. Burt farm in a Stray sand 19 feet above the Peeker sand at 337 feet. It is good for about three-quarters of a barrel a day and had been drilled to the Cow Run sand at 417 feet which had been found dry.

WEST VIRGINIA

There were six producers completed in West Virginia during the week, five of which were in Ritchie County. The largest was No. 5 of the Richards Farm Oil Co. on the Corlie Ball farm in Clay district completed in the Injun sand showing for 25 bbls. a day from that formation. The first pay was struck at 1,887 feet, and the second at 1,896 feet. This is the Lost Run Pool. In this pool Lucky Strike Oil Co. completed a second test on the J. F. Goodwin farm in the Injun sand good for 1 bbl. a day.

In the Pike Pool, Clay district, Ritchie County, John M. Trexler and others completed a test on the Theodore Butcher farm on Bonds Creek in the Injun sand at a depth of 1,890 feet. It is showing for 3 to 5 bbls. a day. In Grant district, Sears and others completed a test on the W. H. Grudier farm in the Big Injun sand at 2,080 feet showing for a 10-bbl. pumper. In Murphy district, Patton & Wilson Oil Co. drilled deeper No. 6 on their own property on Bear Run from the Maxon and Gas sands down past the Injun sand and plugged back to the Injun sand. It will make about a 2-bbl. pumper and was a former gas well in the Maxon sand.

In the Pike Pool section in Clay district, Ritchie County, the test of Lucas and Mahaney on the Earl Cunningham farm was drilled through the Big Injun sand and was dry.

In Wayne County, Chartiers Oil Co. completed a test on the Freeland Thompson farm on Patrick Creek in Butler district in the Berea sand showing for 5 bbls. a day. It is about 800 feet south of Edward Oil & Gas Co.'s No. 1 on the Edward Ronk farm which was a producer of similar size.

Gas Wells

In Boone County, the second test of Pure Oil Co. on the A. M. Prichard lease in Sherman district proved dry. It was drilled to the Weir sand at a depth of 2,790 feet.

In Cabell County, H. H. Baker Gas Co. completed No. 3 on the Augusta Beckett farm in McComas district in the Salt sand at a depth of 1,652 feet. It is a fair gas well, gauging about 1,372,000 feet a day.

In Calhoun County, Mudlick Oil & Gas Co. completed a test on the I. G. Flesher heirs farm in Lee district in the Blue Monday sand at a depth of 1,825 feet. It is a light gas well.

In Kanawha County, Godfrey L. Cabot, Inc., completed No. 6 on the William P. Tompkins farm in Malden district in the Brown shale at a depth of 2,326 feet. It has a very light showing of gas.

In Ritchie County there were two gas wells. In Murphy district, Bode and Coffell completed a test on the B. F. Jenkins farm in the Big Injun sand at a depth of 2,109 feet. It is a gas well gauging about 150,000 feet a day. In Grant district New York Petroleum Co. completed a test on the Lafayette Moss farm in the Big Injun sand at 1,861 feet. It gauges a similar volume and formerly was a Salt sand gas well. In Clay district, Murphy and others drilled a test on the Methodist Episcopal Church lot through the Squaw sand, depth 1,839 feet, and it was a dry hole.

In Roane County, Everett Starcher and others completed a test on the J. N. Harold farm in Geary district in the Squaw sand at a depth of 2,605 feet. It is a small gas well with 134,500 feet a day.

In Wirt County, on Rock Run in Burning Springs district, Glen Roberts drilled No. 4 on the George W. Hall farm through the Injun sand and it proved dry.

Drilling in West Virginia

In Boone County, Pure Oil Co. has started drilling No. 69 on the Federal Coal Co. tract in Sherman district and is building a rig for No. 70 and clearing a road to a location for No. 71. The company has abandoned the location for No. 42 on the Lafollette, Robson and Prichard Tract A, and the location for No. 256 on the Williams Coal Co. lease. In this district, Godfrey L. Cabot, Inc., has reached 1,997 feet in No. 54 on the Federal Coal Co. lease. Columiban Carbon Co. is drilling at 1,600 feet on the Broun-Cochran farm, No. 7. In Peytonia district, Owens-Illinois Bottle Co. has abandoned its locations on the Broun-Cochran lease as well as locations on the Cassingham and others lease, the S. M. Wheeler lease, both in Scott district, and two locations on the Peytonia Land Co. lease in Sherman district. Its No. 22 on this lease is drilling at 895 feet. In Washington district, Godfrey L. Cabot, Inc., has reached 1,560 feet in the second test on the White and Hopkins lease and is pulling casing.

In Cabell County, R. H. Adkins and others have started drilling on the Nando Johnson farm in McComas district. All other tests appear inactive at present.

In Calhoun County, F. F. McIntosh has started spudding the test on the Seymore Settle farm in Sherman district. I. B. Fowler and others have started drilling on the I. B. Fowler farm. In Lee district, F. F. McIntosh is drilling at 225 feet on the E. L. Hays farm. Jarvis and Ayers are drilling up the bailer on the Roanna Robinson farm at 1,100 feet. In Washington district, Harley Jarvis and others have started drilling on the Clark Wilson farm. W. B. Reed and others are drilling at 700 feet on the Curtis and Ella B. May farm.

In Gilmer County, South Penn Oil Co. has completed rig for No. 3 on the Flora S. Bennett farm in Center district about 700 feet south of the G. L. Cabot No. 1 on the A. H. Blackshire farm. West Virginia Utilities Co. is drilling at 2,121 feet on the John J. Gerwig farm and soon should hit the Berea. K. M. Hunt and others are drilling at 1,575 feet on the J. R. Simmons and others lease, a test. McCall Drilling Co. has reached 2,350 feet on the L. R. Moore farm. In DeKalb district, on Tanner Creek, this company is drilling deeper No. 3 on the Riddle Brothers lease and is down 1,949 feet. On Bull Fork of Tanner Creek, Tracy Cain and others have a rig standing for No. 6 on the Harriett Gainer farm.

In Kanawha County, S. B. Avis, trustee for Grosscup and others, have started drilling on the Copen heirs farm in Elk district about 4,000 feet north of the Oriskany sand test on the W. L. Burdette farm. As this test deepens it will be the focus of interest. In Malden district, Godfrey L. Cabot, Inc., has started drilling No. 8 on the Campbells Creek Coal Co. lease. No. 7 on this lease is testing at 2,003 feet and may be drilled deeper. Valley Gas Co. is drilling at 1,069 feet in the second test on the G. W. Harless farm in Elk district. In this district, Lincoln Gas Co. has material on the ground for No. 6 on the Whittaker tract. In Cabin Creek district, Godfrey L. Cabot, Inc., is drilling at 415 feet No. 47 on the A. D. Huntington lease and spudding in No. 48. Pure Oil Co. has abandoned locations for No. 254 and No. 255 on the Williams Coal Co. tract.

In Ritchie County, R. W. Richards has a location on his own farm in Grant district. In this district Swingle Brothers have reached 1,788 feet on the Crissell Vincent farm and M. Edwards and others have shut down at 1,500 feet on the Catherine Freeman farm. In Murphy district, T. H. Hanley is on top of the Injun sand on the D. M. Miller farm. Everett Starcher and others are down 785 feet on the I. R. Wilson farm. Patton & Wilson Oil Co. has made a location for No. 7 on the Patton & Wilson farm. In this district, on Lambs Run, King Knob Gas Co. has started drilling No. 3 on the Payton Tingler 57-acre farm about 500 feet east of No. 1. In Clay district on Hughes River, W. E. Taylor has rigged up on the D. M. Bradford farm.

In Roane County, Reedy Oil & Gas Co. drilled No. 2 on the L. M. Riddle farm a little deeper in the Salt sand and increased production about 5 bbls. a day.

(Continued on Page 74)

Administrator's Report on Crude Stocks

Stocks of domestic and foreign crude petroleum at the close of the week ended October 6 totaled 333,511,000 bbls., a decrease of 41,000 bbls. from the total of 333,552,000 bbls. on hand at the end of the preceding week, Harold L. Ickes, Secretary of the Interior and administrator of the code of fair competition for the petroleum industry, announced today. This decrease, which followed an increase of 577,000 bbls. during the previous week, comprised an increase of 56,000 bbls. in stocks of domestic crude oil and a decrease of 97,000 bbls. in stocks of foreign crude.

According to current reports of the industry for the week ended October 6, in comparison with those for the previous week, daily average crude production remained virtually unchanged but imports showed a material decline. Daily average crude runs to stills declined to 2,255,000 bbls. from an average of 2,320,000 bbls. the previous week. The approximate daily average balance of crude oil for the week ended October 6 was as follows (barrels): Production, 2,470,000; imports, 57,000; decrease in stocks, 6,000, equals runs to stills, 2,255,000; exports, losses, etc., 278,000.

CRUDE PETROLEUM STOCKS REPORTED BY COMPANIES HOLDING 100,000 BBLS. OR MORE

Grade of crude oil	Stocks held by reporting companies Sept. 29, 1934 (bbls.)	Oct. 6, 1934 (bbls.)	Change from Sept. 29, 1934 (bbls.)
Pennsylvania Grade	4,624,000	4,657,000	+33,000
Other Appalachian, including Kentucky	1,174,000	1,151,000	—23,000
Lima-Northeast Indiana-Michigan	1,391,000	1,395,000	+4,000
Illinois-Southwest Indiana	11,515,000	11,488,000	—27,000
North Louisiana and Arkansas	10,325,000	10,243,000	—82,000
West Texas and Southeast New Mexico	29,600,000	29,888,000	+288,000
East Texas	35,098,000	34,616,000	—482,000
Other Mid-Continent	156,862,000	156,967,000	+105,000
Gulf Coast	18,542,000	18,518,000	—24,000
Rocky Mountain	27,706,000	27,752,000	+46,000
California	33,696,000	33,914,000	+218,000
Total domestic crude	330,533,000	330,589,000	+56,000
Foreign crude	3,019,000	2,922,000	—97,000
Total crude	333,552,000	333,511,000	—41,000

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Among Gulf Coast Drilling Contractors

One of the most interesting contract drilling jobs now under way in the Gulf Coast is the well being drilled by W. V. Bowles for the Continental Oil Co. at Citrus Grove, Matagorda County. This prospect is known to be underlain with heaving shale, and the method of tackling the job of getting through it has only been tried in a few other instances. Two hundred feet of 18⅝-inch surface casing was set. At 1,965 feet, 13⅜-inch casing was set. A little above 6,270 feet, where 9⅝-inch casing was set, the heaving shale was encountered. The shale was drilled to a total depth of 6,657 feet, where it was decided to run a string of flush-joint 7⅝-inch casing. This casing was fitted with a cast iron bit in order that it might be rotated to bottom in case the shale had followed the drill pipe out of the hole. It was landed within 46 feet of bottom, but was not cemented. The cast iron bit was then milled out and a string of 5½-inch flush joint casing, also fitted with a cast iron bit, carried the hole to 6,960 feet where the shale stuck the pipe. Again the bit was milled out, and a string of 3½-inch flush joint pipe is now in the hole making an attempt to get through the shale. Special drilling muds and chemicals have been used since the shale was encountered. Heaving shale has long been one of the outstanding problems in the Gulf Coast, and considerable study and effort is now being devoted to the task of devising a safe, sure way of drilling through it. When a method has been perfected, it is generally believed it will make possible the opening of new deep reserves in the Gulf Coast. Mr. Bowles also has a rig running for the Texas Co. in the Manvel Field, Brazoria County.

Frank Long is the latest addition to the long list of drilling contractors, with headquarters in Houston, to join the trek toward Hidalgo County where the Sam Fordyce Field is holding the spotlight. Mr. Long is moving in one rig at once, and will probably move in the second rig within a few days. Although details are not available, one rig will be put on contract work, and the other rig will probably be put to work on leases in which Mr. Long is interested.

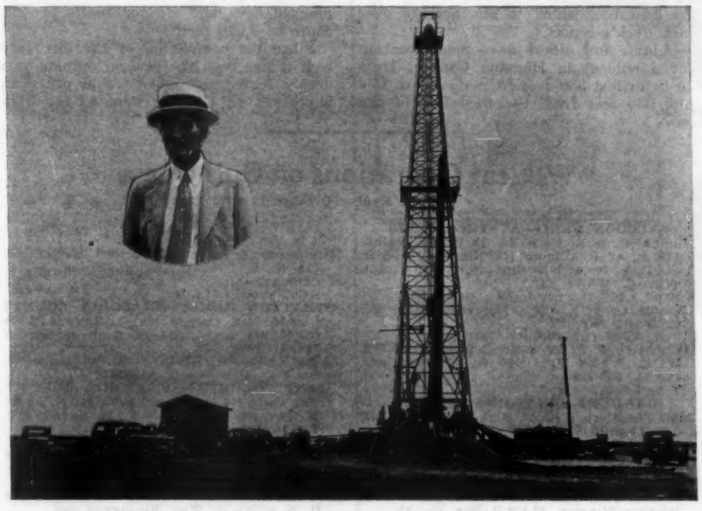
L. W. Capps has two rigs running for H. M. Naylor at Thompsons, Fort Bend County. One rig is drilling a new well, and the other is on a work-over job. Mr. Capps' well at San Felipe Dome, Waller County, recently completed as a small producer, was worked over and came in as a 2,400-bbl. producer after being deepened 9 feet.

Bud Coyle has one rig running for the Republic Production Co. in the Ariola Field, Jefferson County, and a second rigging up for the same company in the same field. Mr. Coyle is among the Gulf Coast contractors who have several deep contract holes to their credit, recently having dug two deep tests for the Federal Petroleum Co. in Beauregard Parish, Louisiana, one of which went to 8,700 feet, and the other to 8,400 feet.

Gholson Drilling Co. is moving a rig into the Sam Fordyce Field, Hidalgo County, to drill a well for C. L. Smith and itself. The well will be carried as No. 1 Clements, and is about 1,500 feet from the discovery well. The company also has four or five other small tracts to drill in the field.

John Deering, who recently completed a producer for D. S. Cogswell in the Pierce Junction Field, is preparing to move rig to another location in the same field where he will dig a second well for the same operator. Mr. Deering has also moved in a rig to drill a well for himself and Paul Kaiser approximately 10 miles northeast of the Sam Fordyce Field, to be carried as No. 1 Engleman Gardens. A third rig is drilling at 4,650 feet on a well in the Batson Field for the Batson Oil Co. and himself, and a fourth rig is preparing to move into Madison County where a well will be dug for principals to be announced later.

C. & R. G. Drilling Co. is coring at 6,900 feet in the top of the Frio on its No. 1 Frank Truska, in Brazoria County, and has spudded in on an 8,000-foot test for the Gillock Petroleum Co. in the Dickinson area, Galveston County.



Indicative of the trend toward deeper-hole digging by Gulf Coast drilling contractors is Pure Oil Co.'s No. 1 J. W. Shelor, Dickinson, Galveston County, in which 6,960 ft. of 9-5/8-in. casing has been set and cemented by the contractor, Edwards Drilling Co. The contract on this well calls for an 8,500-foot hole unless, of course, production is encountered higher up. Insert picture is of Harry L. Edwards, president of the Edwards Drilling Co. The same contractors recently bottomed a dry hole at 8,504 feet at Church Point, La., for Woolley Petroleum Co. and others, without having a single fishing job or any accident of any kind

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New Field Is Indicated in Calcasieu Parish, La.; Kittrell Field Continues to Be Disappointing

By F. L. SINGLETON
Gulf Coast Bureau, The Oil and Gas Journal

HOUSTON, Tex., Oct. 15.—A new field was assured the Gulf Coast district the latter part of the week, when Union Sulphur Co.'s No. 2 Barbe, a wildcat in the Gillis area, Section 11-9s-8w, Calcasieu Parish, Louisiana, started flowing by heads after it had been washed for two hours. It started off by making an estimated 3 bbls. of fluid per hour, of which 10 per cent was oil and 90 per cent wash water. After flowing a few hours it made one big head and then started blowing dry gas and sand through a one-quarter inch choke on tubing, with tubing pressure 100 pounds. It was then shut in for several minute intervals and the pressure built up to 500 pounds on the tubing. When it was opened again through a three-eighths inch choke on the casing, it flowed at the rate of 5 bbls. per hour, of which 30 per cent was oil and 70 per cent water. Last reports from the well were that it was still flowing into pits at the rate of 12 bbls. per hour through a three-eighths inch choke on the tubing with tubing pressure from 275 to 300 pounds. There was no gauge on the casing. A shake out test showed the well to be making 75 per cent salt water. The oil is 35 gravity and is light green in color.

The well was originally drilled to a total depth of 7,918 feet and was plugged back and sidetracked at 6,600 feet. It topped the oil sand at 6,760 feet and is bottomed at 6,772 feet. Six and five-eighths inch casing was cemented on top of the sand and the operators set 21 feet of 4½-inch .80 mesh screen and 101 feet of 4½-inch blank pipe.

The well is on a block of approximately 7,000 acres, and this is the third test to be drilled by the company on this geophysical prospect. The first two tests were north of No. 2 Barbe. No. 1 Barbe estate was abandoned at 8,125 feet, three-quarters of a mile south of the company's No. 1 Stout, also abandoned at 7,998 feet.

Although No. 2 Barbe is making considerable water, it definitely establishes the existence of a new field, and has the appearance at its present status of being an edge well, consequently much interest will be centered on the company's No. 1 State Land, three-quarters of a mile northeasterly in Section 12-9s-8w, considered by many as being located more closely on the structure.

The completion of No. 2 Barbe makes the seventh producing field in Calcasieu Parish.

Kittrell Disappointments

Disappointments continue in the Kittrell Field in southern Houston County. The abandonment of two outpost tests and the appearance of another dry hole due south of the discovery gives this new field a rather doubtful outlook. About 1½ miles southwest of the discovery well in Walker County, Eastern Texas Petroleum Co.'s No. 1 Texas Long Leaf Lumber Co. in the F. Willis Survey was abandoned at 2,525 feet in shale, defining production in that direction. In the same county and about the same distance southeast of the discovery, Lawrence and Flannery's No. 1 Texas Long Leaf Lumber Co. has been abandoned at 2,136 feet, after it had failed to pick up production in the Carrizo sand. It is in the Mary Milsap Survey. Due south of the discovery, on the Houston-Walker County line, Dick Hooper's No. 1 Mangum is shut down at 2,127 feet and will probably be abandoned. It cored from 2,107-27 feet and recovered shale and lime.

Northwest of the discovery, Humble Oil & Refining Co.'s No. 1 Shaw came in as the second producer in the field, and when first tested started flowing at the rate of 31 bbls. per hour through a one-quarter inch tubing choke, showing .1 to 1 per cent b.s., but late in the week it started showing from 5 to 40 per cent drilling mud and fresh water while flowing into pits. Based on top of the sand found at 2,069 feet, the well is 35 feet lower than the discovery and it defines production to the northwest.

With dry holes to the northeast, southeast, south, southwest and with the second producer to the northwest showing considerable water, the producing limits of the field will be confined to a rather small area.

The latest production gauge on the discovery well, ending at 8 a. m., October 12, showed a daily production of 284 bbls. of fluid through a one-quarter-inch choke on the tubing, with tubing pressure 140 pounds and casing pressure 650 pounds. It is making an estimated 7 per cent fresh water, which is an increase over last week's report.

Adams and others have made location for a wildcat in Houston County. It is to be drilled 330 feet from the south line and 330 feet from the west line of the Lovelady 55-acre lease, about 2½ miles northeast of the town of Lovelady in the J. Thomas Survey.

Van Vleck Field

In the Van Vleck Field, northern Matagorda County, Skelly Oil Co.'s No. 2 Cobb, in the Marie Cummings Survey, assured that field of its second producer the past week when it flowed 161 bbls. of 40 gravity oil in 11 hours from a total depth of 7,073 feet. It had oil sand from 7,048-61 feet. Screen was set from 7,047-61 feet, with blank pipe set from 7,061-63 feet. For two days the well has been flowing around 200 bbls. per day on various chokes, ranging from a one-quarter to three-eighths, with casing pressure 1,900 pounds and tubing pressure from 1,700 to 1,800 pounds. It is 1,600 feet northwest of the company's No. 1 Cobb, discovery well which is producing wet gas from a sand at 7,076 feet. The hole was originally drilled to a total depth of 7,178 feet, and was plugged back and cleaned to its present depth of 7,076 feet.

Since the completion of the discovery well it has been the general opinion this deeply seated salt dome would prove an important oil field as soon as the high gas pressure was relieved. The working pressure on the discovery well is 2,575 pounds and it is producing a brown distillate oil of 57 gravity, whereas No. 2 Cobb has a working pressure of 1,900 pounds and is producing 40 gravity oil. A correlation of the two wells based on the top of the Marginulina gives the following information:

	Elevation	Actual	Subsea
No. 1 Cobb.....	66	6,535	6,469
No. 2 Cobb.....	65	6,550	6,485

Other markers on No. 2 Cobb were the top of the Discorbis at 5,770 feet actual and the top of the Heterostegina at 6,200 feet actual. Both of the wells are producing from the Frio formation.

The Van Vleck Field is about 10 miles southeast of the Pledger Field in Brazoria County, and about 15 miles northwest of the Buckeye Field, in Matagorda County. The three fields are in a direct line from each other, and are of the same general type.

The two producers are on a block of 7,400 acres of which Skelly Oil Co. has a three-quarters interest. Lenach Corp. owns a one-eighth interest and Atlas Royalty Corp. owns a one-eighth interest. The discovery well was drilled in March of this year after the block had been taken on the strength of reflection dip shooting. Although the company has not made any announcement of new development in the field, it is expected to start a definite development program within the near future.

Trinity County

Gulf Production Co. is to start within the next six months development of its 80,000 acres scattered throughout Trinity County, purchased from the Trinity Lumber Co. at a reported price of $50,000 cash and 50 cents per acre annual rentals for five-year leases. The company has agreed to drill five wells, each well to be started 30 days after completion of the preceding well. This is the most active wildcatting development program announced in any district within the past two years.

Waller County

Interest in the San Felipe Dome, Waller County was revived during the week, when Seaport Oil Co.'s No. 1 Vaughn in the John McFarland Survey No. A-26 started flowing through casing and around the drill stem, while the operators were going into the hole to take another core, after it had been deepened from its old total depth of 2,969 feet to 2,978 feet. The operators let the well flow into the slush pit and after the well had been shut in the oil was picked up from the pit with a pump, and it filled a 500-bbl. tank in 4 hour and 10 minutes. The well is shut in with a blowout preventer and the operators are now preparing to set screen and test.

The well was completed for a small pumper the first week in September, opening the first commercial production on the dome, after a total of 11 wells had been drilled. The dome is in the extreme southern part of the county, on the Waller-Austin County boundary line, and about 3 miles west of the town of Brookshire.

Victoria County

In the extreme northern part of Victoria County, Texas Co.'s No. 1 Midgett, a rank wildcat in Section 14, T.&N.O. Survey, opened a new gas field on the lower Gulf Coast when it tested 475 pounds of dry gas pressure on an eight-

Wildcat Operations on Gulf Coast

Week Ending October 13

RACCOON BEND—AUSTIN COUNTY

Humble O. & R. Co.'s No. 13 Robert Paine, 510 ft. at R/A from NW line and 400 ft. at R/A from NE line of 365-ac. tract, Wm. C. White Sur.
Sand 4,117 ft.; cmtd. 7-in. csg.

Humble O. & R. Co.'s No. 6 Belliville, W. C. White Sur.
T.D. 4,339 ft.; abd.

Humble O. & R. Co.'s No. 1 Sherrill (D.D.), W. C. White Sur.; 650 ft. NE line and 400 ft. SE line.
T.D. 5,136 ft.; abd.

DANBURY—BRAZORIA COUNTY

Shell Pet. Corp.'s No. 7 Blakely-Winston, 62 deg. 11 min. E, 5,540 ft. N, 26 deg. 49 min. W, 200 ft. from SW cor. of Blakely-Winston 640-acre tract, H.T.&B. Sur.
Building derrick.

Shell Pet. Corp.'s No. 3 Haury, 800 ft. SE of No. 2 in line with No. 2 and No. 1 Blakely-Winston, H.&T.B. Sur. No. 12.
Cmtd. 9⅝-in. csg. at 6,022 ft.; T.D. 6,290 ft.
T.D. 2,540 ft.; to abandon.

DAMON MOUND—BRAZORIA COUNTY

Gulf Stream, Inc.'s No. 1 Cave Heirs, 160 ft. from N line and 60 ft. from E line of Lot C, Blk. 50, A. Darst Sur.
Location.

Esco's No. 1-D Wisdom, 25 ft. from S and W lines of Blk. D. Lot 5, A. Darst Sur.
Drlg. shale 1,720 ft.

Intercoastal Oil Co.'s No. 12 Wisdom, 90 ft. from N line and 35 ft. from W line of Lot A, Blk. 51, A. Darst Sur.
Drlg. rock 2,146 ft.

MANVEL—BRAZORIA COUNTY

Texas Co.'s No. 2-A Casolo, 200 ft. N and 200 ft. W of SE cor. of lease, Chas. O'Donnell Sur.
Drlg. shale 4,000 ft.

Texas Co.'s No. 3 Scopel, 200 ft. S of N line of lease and 330 ft. SW of SW line of Belcher lease, Charles O'Donnell Sur. No. 74.
Cmtd. 7-in. at 5,135 ft.; T.D. 5,150 ft.

Texas Co.'s No. 4 Houston Oil Field Assn., 247 ft. S of N line and 441 ft. W of SE cor. of Lot No. 10, A.C.H.&B. Sur. No. 91.
Drlg. sand 3,981 ft.

Gulf Prod. Co.'s No. 3 F. H. Colby, 330 ft. from SE and 330 ft. W from N cor. of Lot 19, SE offset to Windsor Oil Co.'s No. 1 Colby, T. Sproggins Sur.
Drlg. sand and shale 5,156 ft.

Harrison & Abercrombie's No. 1 Elving, C of Lot No. 15, H.B.&T. Sur.
T.D. 4,035 ft.; I.P. 125 bbls. per day; 300 lbs. pressure.

Texas Co.'s No. 7 Houston Oil Field Assn., 247.5 ft. S and 441.9 ft. W of NE cor. of Lot 8.
Drlg. shale 1,850 ft.

Texas Co.'s No. 1-A Massey, 330 ft. out of NW cor. of 33-ac. tract in H. Stevens Sur.
Drlg. shale 7,590 ft.

PLEDGER—BRAZORIA COUNTY

Danciger O. & R. Co.'s No. 4-A Hurt, 200 ft. SW of No. 3-A, W. C. Carson Sur.
T.D. 6,820 ft.

Humble O. & R. Co.'s No. 1 Bob McFarland, 525 ft. S. 1,900 ft. W of SE cor. W. C. Carson Sur.
Drlg. sand 6,684 ft.

STRATTON RIDGE—BRAZORIA COUNTY

Amerada Pet. Corp.'s No. 1 Bowers, 2,400 ft. N line and 1,550 ft. from E line of Jared Groce Sur.
T.D. 4,450 ft.; P.B. to 1,722 ft.; sidetracked; drlg. sand 2,150 ft.

WEST COLUMBIA—BRAZORIA COUNTY

Texas Co.'s No. 34 Hogg, 2,483 ft. N. 50 ft. W from SE cor. of lease in M. Varner Sur.
Temporarily S.D. 5,242 ft.

BARBERS HILL—CHAMBERS COUNTY

McAlbert Oil Co.'s No. 7 J. F. Wilburn, 150 ft. W of No. 6 and C of H. Griffin Sur.
Drlg. salt 1,885 ft.

Mills Bennett Prod. Co.'s No. 2 Fisher, 150 ft. N of No. 1, Wm. Bloodgood Sur.
T.D. 5,350 ft.; reaming.

Mills Bennett Prod. Co.'s No. 10 Wilburn, 190 ft. S N line, 150 ft. W of No. 9, Henry Griffith league.
T.D. 4,671 ft.; cmtd. 9⅝-in. csg. 4,633 ft.

Moody Corp.'s No. 1-C E. W. Barber, 302 ft. from N line and 312 ft. from E line of "B" lease, H. Griffith Sur.
Cmtd. 24-in. csg. at 60 ft.

Humble O. & R. Co.'s No. 6-B Kirby, 593 ft. N of S line, 388 ft. E of W line of lease, or 125 ft. N and 288 ft. W of No. 5.
Drlg. sand 5,246 ft.

Humble O. & R. Co.'s No. 7-B Kirby, 200 ft. W of No. 6 in Henry Griffith league.
Derrick.

Sun Oil Co.'s No. 6 Higgins, 302 ft. W of E line and 432 ft. N of S line of lease.
Drlg. sandy shale 3,132 ft.

Sun Oil Co.'s No. 10 Chambers, 50 ft. from N and W lines of lease.
Drlg. salt 2,137 ft.

Sun Oil Co.'s No. 17 Wilburn fee, 188 ft. E of W line and 40 ft. S of N line and 150 ft. W of No. 16.
Derrick.

Sun Oil Co.'s No. 22 J. Wilburn, midway between wells No. 17 and 21, or 150 ft. from each well.
Drlg. salt 2,915 ft.

Texas Gulf Prod. Co.'s No. 4-B E. W. Barber, 75 ft. S of Moody Corp.'s No. 6-A Barber and 75 ft. from SW line of 33-ac. lease, H. Griffith Sur.
Drlg. salt 1,519 ft.

Texas Gulf Prod. Co.'s No. 5 J. F. Wilburn, 110 ft. W of No. 3 and 50 ft. N of S line of lease, Wm. Hodge Sur.
Drlg. salt 2,600 ft.

Texas Gulf Prod. Co.'s No. 3 O. W. Winfree, 595 ft. S of N line and 50 ft. W of E line of lease.
U.R. 4,172 ft.

Mount Lee Oil Co.'s No. 35 Chambers County, 75 ft. S. 50 ft. W of NE cor. of lease
T.D. 3,845 ft.; rotating over drill pipe.

(Continued on Page 82)

minute drill stem test from 2,816-47 feet through a one-quarter inch choke on bottom and a five-sixteenths inch choke on top. Casing was cemented at 2,816 feet. The hole was originally drilled to a total depth of 5,790 feet, but was sidetracked at 1,734 feet. The test is on a block of 7,500 acres near the junction of DeWitt, Lavaca and Jackson Counties, north of Victoria. It is reported the company will drill another deep test.

Wharton County

The Louise Field, Wharton County, was extended one-half mile northeast when Pure Oil Co.'s No. 1 Adams, in Section 25, T. W. Heard Survey, was completed for an initial production of 37 bbls. of oil in 12 hours through a one-quarter inch choke with tubing pressure 1,835 pounds and casing pressure 283 pounds. Nine and five-eighths inch casing was cemented at 5,126 feet. Total depth is 5,150 feet. This is the sixth producer in the field. The company has made location for its No. 2 Garrett, 990 feet northwest and 330 feet from the northeast from the southeasterly line of a 320-acre tract in Section 28, T. W. Heard Survey.

Hardin County

On the northeast flank of the Saratoga Dome, Hardin County, Hines Brothers' No. 1 Caswell in the B.B.B.&C. Survey No. 72, about three-quarters of a mile east of production, is swabbing in from a total depth of 3,323 feet and has the appearance of making a producer. While swabbing with the casing open the operators recovered a small amount of pipe line oil of 37.2 gravity. Casing has been closed and it is reported to be building up in pressure. Six and five-eighths inch casing was cemented at 3,280 feet. It is bottomed at 3,323 feet.

In the same county, but on the south flank of the Batson Dome, in the western part of the county, John A. Deering and others' No. 3 Hooks is drilling in the Frio below 4,517 feet. A small show of gas was reported at around 4,440 feet.

The wildcat of Turnbull and Irwin, No. 1 Braden, 4 miles southeast of the town of Juliff in the H.T.&B. Survey, has been abandoned at 6,700 feet.

Galveston County

Two wells in the Dickinson area, Galveston County, have cemented protection casing, and are waiting for cement to set. Humble Oil & Refining Co.'s No. 1-B Maco Stewart, in the John Sellers Survey, about one-half mile west and slightly north of the company's No. 1 Maco Stewart, which blew out several months ago, cemented 9⅝-inch casing at 7,701 feet. Total depth is 7,727 feet. Pure Oil Co.'s No. 1 J. W. Shelor in the B.B.B.&C. Survey, cemented 9⅝-inch casing at 6,984 feet. The third test to get under way is Gillock Petroleum Co.'s No. 2 Maco Stewart, spudded during the week. It is in the Alex Farmer Survey.

Liberty County

In Liberty County, Turnbull and Irwin's No. 1 Lynott and Buffum, located 11 miles north of Liberty in the James Robeson Survey, is shut down at 4,751 feet in shale, and is reported to have had a salt water sand around this depth. It is still in the Frio and is expected to be carried to the Cockfield. With an elevation of 40 feet it topped the Frio at 3,945 feet and the Discorbis at 3,570 feet.

Polk County

Johnson Brothers' No. 1 J. F. Smith, a wildcat in the northern part of Polk County in the Isaac Parker Survey, has reached an interesting depth as it cores in the Cockfield. It had a good odor of oil and gas in a core from 3,839-40 feet and is coring below 3,840 feet, with an elevation of 182 feet. It topped the Hocklegensis at 3,010 feet, the Operculina at 3,782 feet and the Cockfield at 3,805 feet. In the same county, but on the northeast edge of the Livingston Field, Smith and McDannald's No. 1 Davis and Holmes in the A. Viesca Survey, has been abandoned at a total depth of 4,355 feet after it had failed to develop production from the Cockfield, which was topped at 4,264 feet.

SOUTH LOUISIANA

In the Bosco Field, Acadia and St. Landry Parishes, South Louisiana Gulf Coast, Superior Oil Producing Co.'s No. 1 Adras Guilbeau has been abandoned in shale at a total depth of 8,810 feet. Location is in Section 26-8s-3e. Same company's No. 1 Auguste Martinez has been temporarily abandoned after it tested salt water at a plugged depth of 9,103 feet. It was originally drilled to a total depth of 9,325 feet. No new locations were announced during the week.

Humble Oil & Refining Co.'s No. 1 Martin Kratzer, in the Roanoke Field, Jefferson Davis Parish, tested 4,200,000 feet of gas at 8,830 feet and will probably be drilled deeper. It is one-half mile southwest of the discovery. Shell Petroleum Corp.'s No. 1 Jarnigan, an east offset to the discovery well, which tested 99 per cent salt water at 8,764 feet, last week is being plugged back to 8,748 feet.

In the Gueydan Field, Vermillion Parish, Pure Oil Co.'s No. 6 Alliance Trust Co., on the northwest edge of the dome is coring in sandy shale below 9,241 feet. It encountered sandy shale with an odor of oil from 9,165-67 feet and from 9,197-9,216 feet. This is the deepest test drilled in the field.

Humble Oil & Refining Co. has made location for another deep wildcat test on the Conroe trend. It is in Evangeline Parish, near the upper reaches of Bayou Nezpique, which forms the northwest boundary line of the Haas lease. This is the third wildcat to be announced by the company within three months. The other two are in Allen and Calcasieu Parishes. The company's No. 1 Industrial Lumber Co., in Allen Parish, is drilling in shale below 7,136 feet. The other test in Calcasieu Parish is rigged up and will probably be spudded during the week.

Michigan Fields

(Continued from Page 57)

Austin Township, Mecosta County, failed to strike commercial production in the Michigan stray sand and is drilling for a possible Dundee test.

Wildcats

Two wildcats in Central Michigan were nearing completion in the Dundee, M. F. Whitehall's No. 1 Kintner, Section 11, Beaverton Township, Gladwin County, and Ithaca Oil & Gas Co.'s No. 1 Thum, Section 19, Elba Township, Gratiot County.

Four permits to drill were issued: Two for Ide Oil & Gas Corp.'s No. 1 James M. Donovan, NE SE NW Section 19-22n-2e, West Branch Township, Ogemaw County, and L. A. Johnston's No. 1 W. L. Aviatt estate, SW SE SW Section 24-16n-2e, Mills Township, Midland County. Lima Oil Corp.'s No. 1 W. R. Angell and Harry C. Spillman, NE SW NE Section 22-10n-16w, Muskegon Township and county, and Sun Oil Co.'s No. 7 J. L. Miller estate, NW NE SW Section 16-13n-1w, Porter Township, Midland County.

Rex Oil & Gas Co. and Old Dutch Oil & Gas Co., of Muskegon, are planning new wells, the former on a wildcat location in Montcalm Township, Montcalm County, and the latter in Section 36 of Vernon Township.

The Rex company, organized by officials of the Naph-Sol Refining Co., North Muskegon, has an interest with Golden Oil Co. in the proposed new test on the Anton Steffensen farm in Montcalm Township. Old Dutch is drilling the first of two gas tests in Section 36, Vernon Township, C SW NE. Materials are on the ground for No. 1 Van Houghton on a lease adjoining the Sheets gasser in Mecosta County.

Michigan Cities Natural Gas Co. of Mount Pleasant is planning an extensive drilling campaign in Broomfield Township, Isabella County, where some months ago it purchased the Pure Oil Co. wells and 10,725 acres in leases with an option to buy oil and gas rights on another 35,000 acres owned by the Pure company.

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Good Wells in 5 Kansas Counties Mark Week's Results; Oil Companies Moving Westward

By JAMES McINTYRE

Western Kansas continues to grow in importance as the more easterly fields wane and the future of the oil business lies in what may be discovered and developed in the counties west of Range 3w. The Gypsy Oil Co. has moved its Kansas division offices from Eldorado to Chase, in Rice County, after having been established in the Butler County city for 15 years. Leasing and geophysical work this year have centered in the western part of the State. Just now Rush County is being given a lively leasing play because of a recent oil discovery in a gas territory. While much of the county has been blocked considerable checkerboarding has been done.

In the past week Reno County is credited with a well making 524 bbls. in three hours, and Russell County with one producing 1,499 bbls. in 24 hours. Stafford, Sedgwick, Rice and McPherson Counties are credited with new wells of good production in this week's review of completed work.

Estimated Production

Estimated daily average production of Kansas in the week ending October 13 and for the preceding week follows:

	Barrels	
	Oct. 13	Oct. 6
Hollow	6,700	7,225
Ritz-Canton	9,565	10,750
Voshell	6,920	5,200
Johnson	1,815	1,775
Sedgwick County	7,350	7,225
Nikkel	5,790	5,350
Ellsworth County	2,970	2,076
Barton County	1,196	1,660
Rice County	11,506	12,168
Reno County	6,260	6,539
Ellis County	725	378
Kingman County	1,645	1,615
Stafford County	1,035	1,328
Russell County	7,350	6,650
Greenwood County	11,750	11,750
Butler County	19,400	19,500
Other pools	18,598	19,031
Total	120,575	120,200

Reno County

The Texas Co. made a location for No. 1 Stone, C SW NW Section 15-24-4w, Reno County.

Shell Petroleum Corp.'s No. 1 Ratzlaff, SE SW SE Section 2-23-4w, Burrton Pool, swabbed 223 bbls. of oil and 25 bbls. of water in 24 hours from Hunton lime at 3,607-09 feet. It had not been acidized. The crew was testing.

The Barnsdall Oil Co.'s No. 1 Baughman, NE cor. Section 34-23-4w, in the Burrton Pool, which was completed in August, was given an acid treatment in Hunton lime at 3,587-95 feet and responded with 524 bbls. of oil in three hours.

Skelly Oil Co. had material in for No. 2 Sabin, SE NE SW Section 11-23-4w, and Tide Water Oil Co. had cellar dug for No. 1 Montford, NW NW SW Section 12-23-4w. Olson Oil Co. and Shell Petroleum Corp. made location for No. 4 Goering B, SW NW NW Section 35-23-4w.

Sinclair Prairie Oil Co.'s No. 1 Base A, C NW NE Section 36-23-4w (corrected location), was completed. It flowed 263 bbls. of oil and 185 bbls. of water in 24 hours from pay at 3,307-66 feet, which had been acidized.

Engler and others' No. 1 Balzer, SE SE NW Section 36-22-4w, swabbed an estimated 25 bbls. a day from chat topped at 3,351 feet, total depth 3,370 feet. It will be deepened.

McPherson County

McBride, Inc.'s No. 4 Hoehn, NE NW NE Section 33-21-3w, McPherson County, was abandoned. It was a hole full of water in Wilcox sand at 3,573-78 feet and failed to respond to an acid treatment in Hunton lime at 3,418-24 feet.

Continental Oil Co.'s No. 1 Goering, SE SE SW Section 29-21-1w, set 6-inch on top of Hunton lime at 3,279 feet and drilled to 3,295 feet. The hole filled with oil.

Lario Oil & Gas and Shell Petroleum Corp.'s No. 2 A. J. Miller, NW SW NW Section 6-20-1w, is a location.

Shell Petroleum Corp.'s No. 2 Hull, CSL SE SE SW Section 11-19-2w, pumped 626 bbls. of oil in 48 hours from pay at 3,363-75 feet, which had been acidized. It was not a completion.

Shell Petroleum Corp.'s No. 1 Griffin A, CNL NE NE NW Section 14-19-2w, was completed. It pumped 391 bbls. in 24 hours from Viola lime at 3,369-79 feet, which had been acidized.

Helmerich & Payne made a location for No. 7 Russell B, 330 feet from north line and 1,334 feet from east line of NW Section 23-19-2w.

Boyle & Grossman's No. 4 Smith, NW NE NW Section 29-19-1w, was acidized in Viola lime at 3,417-29 feet. It pumped 99 bbls. of oil and 140 bbls. of water in 18 hours. It was not completed.

Dickey Oil Co. had material in for No. 1 Gustafson, SE NW NW Section 30-18-2w.

Rice County

Dietrick and others' wildcat test, No. 1 Fitzpatrick, C NE NE Section 30-21-8w, Rice County, was a hole full of oil from Siliceous lime at 3,628-33 feet and was shut down for orders.

Torrey, Feaster and others' No. 1 Brown, NE NE NW Section 16-21-6w, swabbed 75 bbls. of fluid per hour, 30 per cent water, from chat at 3,376-3,419 feet.

Shell Petroleum Corp.'s No. 1 McFarland, SE SE NW Section 7-20-9w, pumped 378 bbls. in 24 hours from Siliceous lime at 3,259-91 feet, and was completed.

Sinclair Prairie Oil Co.'s No. 4 Thompson, NW SE NW Section 21-20-10w, was completed. It pumped 1,280 bbls. in 24 hours from Siliceous lime at 3,342-46 feet, which had been acidized.

Keith and others' No. 1 Grove, SE SE NW Section 29-19-9w, an old well deepened, had a hole full of oil in five hours, coming from Siliceous lime at 3,235-41 feet. It was to be given a swabbing test.

Morris County

Ryan and others are drilling at 100 feet in No. 2 Wiesse, C SW NE Section 9-17-7, Morris County. No. 1 Wiesse, C SE NW, is shut down at 1,425 feet.

Russell County

Empire Oil & Refining Co.'s No. 1 Mai, NW NW SW Section 24-15-14w, Russell County, had 2,400 feet of oil in the hole from Siliceous lime at 3,364-70 feet and was acidized.

J. J. Hall and others' No. 1 Miller, NW NE NE Section 31-14-13w, an old well deepened from 2,975½ feet, drilled to 3,030-43 feet and was acidized.

E. K. Carey and others completed No. 1 Schaffer, NW NW SW Section 27-13-14w. It made a potential production of 1,499 bbls. in 24 hours from Siliceous lime at 3,268-75 feet.

Tom Palmer made a location for No. 2 Killian, SW SW NW Section 27-13-14w. Aylward and Skelly Oil Co. have material in for No. 1 Killian, SE SE NE Section 28-13-14w.

Stafford County

Stanolind Oil & Gas Co. completed No. 2 Brock, NE NW NW Section 6-23-11w, Richardson Pool, Stafford County. It was given a second potential test and pumped 514 bbls. in 24 hours, producing from Siliceous lime at 3,547-74 feet. It had been acidized.

Stanolind Oil & Gas Co. was building rig for No. 1 C. J. Heven, SW SE NW Section 31-22-11w.

Stanolind Oil & Gas Co. made a location for No. 5 Hauser, C SW NE Section 16-20-11w.

Cowley County

Lewis Production Co. and Gypsy Oil Co.'s No. 3 Fitzgerald, SE NW SW Section 20-31-6 (corrected location), Cowley County, was completed, a 40-bbl. initial pumper. Bartlesville sand at 2,855-2,930 feet was shot with 60 quarts.

McCall, Murphin and others' No. 1-A Wilson, SW cor. NE Section 36-30-6, was dry and abandoned at 2,040 feet. It had sand with a small showing of oil at 2,880-2,940 feet.

Butler County

Penwest Oil Co.'s No. 1-A Steinhoff, SW cor. Section 21-29-6, Butler County, which was acidized in Kansas City lime at 2,197-2,217 feet, pumped 62 bbls. in 10 hours.

Hammer & McClain's No. 11 Bates, NE SW SW Section 10-27-4, Augusta Butler County, topped Kansas City lime at 1,984 feet, total depth. Same operators were building rig for No. 12, 660 feet north and 330 feet east of SW cor. Section 10-27-4, and had made a location for No. 1-A Suits, 660 feet from south and 330 feet from west line of NW Section 10-27-4.

Al Becker's No. 1-A Beadles, SW SE NE Section 8-27-6, was drilling at 2,767 feet with 400 feet of oil in the hole from pay at 2,763-66 feet.

Scanlon & Bradley's No. 1-A Joseph, C SE NE Section 36-24-3, was completed in Mississippi lime at 2,772-77 feet. It was acidized and started at 60 bbls. per day, with 11 bbls. of water.

Eldorado Refining Co.'s No. 1-A Brewer, SW cor. Section 30-24-4, was dry and abandoned at 2,753 feet.

Elk County

Morrow Brothers' No. 1-A Dunkleberger, C SE NW Section 34-29-10, Elk County, is a 5-bbl. completion at 1,280-1,314 feet.

Sedgwick County

Empire Oil & Refining Co. made a location for No. 1 G. H. Russell, SE NE SW Section 17-28-1e, Sedgwick County. Dickey Oil Co. made a location for No. 1 Cook, NE SE NW Section 20-28-1e. Dickey Oil Co. was drilling at 3,113 feet with 300 feet of oil in the hole in No. 1 Yaw, NE NW NE Section 20-28-1e. Mississippi lime was topped at 3,075 feet; first gas at 3,079 feet; first oil at 3,081 feet.

Aladdin Petroleum Co. and others were building rig for No. 1 D. Lauck, SE NE NW Section 21-28-2.

Solar Oil Co. and Skelly Oil Co.'s No.

(Continued on Page 68)

Wildcat Operations in Kansas

Week Ending October 13

(Descriptions are East unless marked otherwise)

BARBER COUNTY

Lario O. & G. Co.'s No. 1 Whelan, C NW Sec. 32-31-11w.
Chat 4,355-4,435 ft.; P.B. to 4,380 ft.; pumped 231 bbls. oil and 180 bbls. water in 24 hrs.; will retest.

BARTON COUNTY

Gypsy Oil Co. and Atlantic Prod. Co. and Shell Pet. Corp.'s No. 1 Batchman, C SW NE Sec. 18-20-12w.
Siliceous lime 3,433 ft.; T.D. 3,518 ft.; water; S.D. for orders.

Murphin and Downing's No. 1 Lanterman, NW SE Sec. 15-19-11w.
Drlg. 220 ft.

National Ref. Co.'s No. 1 Ingersoll, C NW NE Sec. 2-19-13w.
Siliceous lime 3,348 ft.; T.D. 3,380 ft.; S.D.

C. L. Price et al's No. 1 Ehrlich, NW SE Sec. 10-16-12w.
Rig.

Walter Shearen et al's No. 1 Kempler, SE NE NE Sec. 31-18-11w.
S.D. 300 ft.

BUTLER COUNTY

Gaines et al's No. 1-A McKinley, NE SE Sec. 19-29-4.
5-in. 1,295 ft.; drlg. 1,415 ft.

Bill Red et al's No. 1 DeMoss, NE NW Sec. 8-28-7.
Sand 2,653-85 ft.; S.O.

F. H. Unruh et al's No. 1-A Joseph, SE SW NW Sec. 13-25-4e.
Rig.

CHASE COUNTY

Strong City Gas Co.'s No. 1 Urschel, NW cor. SE NW Sec. 30-18-8.
500,000 ft. gas 408 ft.

CLAY COUNTY

Seidel Bros.' No. 1 Youkers, C S½ SE NW Sec. 21-9-4.
T.D. 1,252 ft.; C.O.

Severs et al's No. 1 Meyers, NE NW NW Sec. 4-10-4.
Mississippi lime 1,775 ft.; T.D. 1,834 ft.

COWLEY COUNTY

National Refining Co.'s No. 1 Robinson, NE SE NE Section 11-34-4.
T.D. 3,105 ft.; chat 3,084-3,105 ft.; recmtd. 5-in. csg.; C.O.

Otstot et al's No. 1 Eckhardt, SE NW Sec. 15-35-6.
Spudded and S.D.

Wakefield et al's No. 1 Weigle, NW SE SE Sec. 6-32-6.
6-in. csg. 2,435 ft.; drlg. 2,470 ft.

DICKINSON COUNTY

Dutch Oil Co.'s No. 1 Phillips, C NE NW Sec. 15-15-1e.
T.D. 2,475 ft.; U.R. 10-in. csg.

ELLSWORTH COUNTY

Ainsworth Bros.' No. 1 Charvat, NE NW NE Sec. 33-15-10w.
Spudded.

Lario Oil & Gas Co.'s No. 1 Harbalek, SW NW Sec. 7-16-10w.
Drlg. 2,135 ft.

GREENWOOD COUNTY

Greeley et al's No. 1 Satler, SW SE SW Sec. 28-25-12.
S.D. 335 ft.

HARVEY COUNTY

Imo O. & G. Co. et al's No. 1 Sperling, SE NE NE Sec. 23-22-2.
Rig.

Wenzel et al's No. 1 Schrag, NW SE Sec. 24-22-3w.
T.D. 587 ft.; S.D. for csg.

KINGMAN COUNTY

W. C. McBride, Inc.'s No. 1 Wolbridge, NW SE Sec. 16-27-7w.
T.D. 4,039 ft.; running 6-in. csg.

McPHERSON COUNTY

C. W. Lamer et al's No. 1 Rolander, NE NE NW Sec. 8-18-2w.
Drlg. 625 ft.

Roth-Farout et al's No. 1 Bestwater, SE SW SE Sec. 23-20-1w.
Rigged up and S.D.

LINCOLN COUNTY

Dieter et al's No. 1 Herrington, NE NW SE Sec. 3-13-1w.
Rig.

MORRIS COUNTY

Home Gas Co.'s No. 1 Kennedy, C NW SE Sec. 7-16-7.
Sand 650 ft.; 500,000 ft. gas.

OSAGE COUNTY

Jim Edwards' No. 1 Detrich, C NW SE Sec. 21-14-15.
Spudded.

OSBORNE COUNTY

Carmen & Hershey's No. 1 Fritz, C NE NE Sec. 9-10-14w.
Drlg. 1,336 ft.

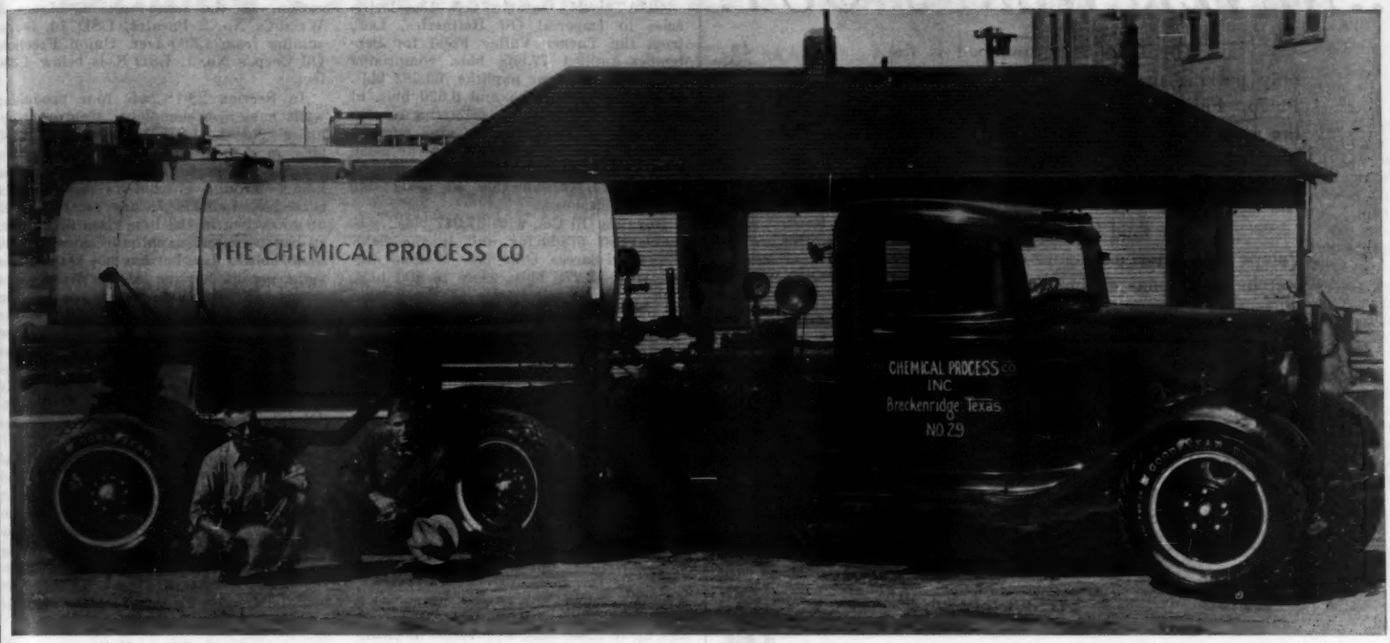
RENO COUNTY

Peraker et al's No. 1 Hiett, SE SW NE Sec. 34-24-4w.
Spudded.

McBride et al's No. 1 Popp, SW SW NE Sec. 22-24-4w.
Drlg. 1,715 ft.

(Continued on Page 82)

ACID



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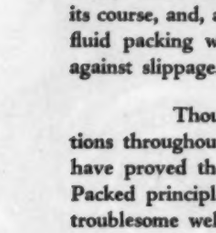

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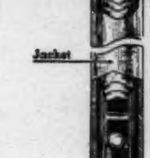

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Turner Valley District Extension Offsets Decline in the Central Field Area

By VICTOR LAURISTON
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Oct. 13.—Deliveries to Imperial Oil Refineries, Ltd., from the Turner Valley Field for September totaled 77,868 bbls. comprising 7,865 bbls. of clear naphtha, 63,383 bbls. of discolored naphtha and 6,620 bbls. of light crude. The 1934 deliveries so far reported, 797,943 bbls. for nine months, compare with 500,000 bbls. for the same period of 1933. Actual production will be much more, considerable oil being sold at the well head.

Royalite Oil Co., with 37,047 bbls., was the largest producing unit in the field. Highwood-Sarcee Oils' No. 1 came second with 12,278 bbls., close to 400 bbls. a day. This well is one of the newest completions and the farthest south producer. Sterling Royalties' No. 1 ranked third with 6,243 bbls. and Miracle Oils, Ltd., with several wells, came fourth with 5,690 bbls. Model Oils, Ltd., ranked fifth with 5,219 bbls. from two producing wells. Among the newer producers, Northwest Co.'s No. 1 Calgary & Edmonton-Longview showed 943 bbls., and Mar Jon Oil Co.'s No. 2 Kindersley, as a result of a shot, increased its yield to 2,006 bbls.

Of the 1,521 bbls. produced in the Red Coulee Field, 1,071 came from the Vanalta wells and 460 bbls. from the O'Neil wells. In the Skiff Field, Devenish Petroleums No. 3 was back in production with 510 bbls. Wainwright production was up to 1,860 bbls. as a result of cleaning and reconditioning, Hargal Oils, Ltd., being largest with 550 bbls. Edmonton-Wainwright Oils' No. 1, recently brought back into production, made 526 bbls.

Turner Valley Field

Turner Valley Field this year is expected to pass the 1,000,000-bbl. total, the highest production since the boom years of 1930 and 1931. The peak was in 1930, with 1,312,695 bbls., while in 1931 the production totaled 1,195,402 bbls. Production from the completion of the first naphtha well, Royalite's No. 4, 10 years ago until the end of September is placed at 6,906,368 bbls., with an estimated valuation of $20,719,104.

After nearly 10 years of steady production, the central area of the Turner Valley, is apparently turning into a dry gas rather than a naphtha field. Production in some of the older wells has dwindled almost to the vanishing point, while rock pressures have declined and the diminishing yield of naphtha per 1,000 feet of gas has discouraged new development. Except for two tests undertaken with the light crude sands above the lime as an objective, there has been no new drilling in the central field this year.

Conditions are somewhat similar in the older sections of the South Turner Valley Field, the once-prolific Home area, Section 20-19-2w5, showing decreased production from individual wells, lower rock pressures and decreased naphtha yields. Meanwhile the field has been steadily working to the southeast, and the declining production of the older areas is being more than offset by new producers. Following the opening of Section 28-18-2w5, in which several big wells have been drilled, a further development has been Highwood-Sarcee's No. 1 in Section 21-18-2w5, a half mile more or less south of producers. This well, with around 400 bbls. a day, indicates that at least this far south the field is as good as in any area yet tested.

How much farther south the field extends is to be determined by drilling contemplated. The farthest south location is Okalta Oils' No. 6, LSD 14, Section 16-18-2w5. in the north end of the section immediately south of Section 21. The farthest south drilling test is Highwood Royalties' No. 1 Oliver, LSD 3, Section 21-18-2w5, at 2,660 feet, in the next subdivision north of the Okalta location. In the same section, Myers & Wright's No. 2 Pacalta, LSD 14, is resuming from 1,500 feet. Union Freehold Oil Corp.'s No. 1, LSD 8, is below 4,350 feet.

In Section 28-18-2w5, four producing wells have been completed. Century Royalties' No. 1, LSD 14, delivered 2,200 bbls. in September and has gradually increased its naphtha recovery from the lime to around 175 bbls. a day. Pacalta Oils' No. 1, LSD 7, has rotary rigged up to deepen in the lime from 5,120 feet. It has potential naphtha recovery of 40 to 45 bbls. a day, but has not reached the main porous horizon of the lime. Two other wells in this section are getting close to the producing horizon. Spooner Oils' No. 5 Anaconda, LSD 1, is below 5,435 feet in the poker chip shales just above the limestone. It is planned to cement 8-inch casing in the lime. Publix Oil & Gas Co.'s No. 1, LSD 8, is cementing casing at 4,920 feet, just above the lime.

In the same section, Carleton Royalties' No. 1, LSD 2, is close to the Home sand at 4,640 feet, and logging closely with Highwood-Sarcee's No. 1 producer. Renfrew Royalties' No. 1, LSD 3, is below 2,000 feet after running 16⅝-inch casing to 1,800 feet. British Dominion Oil & Development Corp.'s No. 4, LSD 6, is below 3,300 feet after cementing against caving.

South Turner Valley

On the east side of the South Turner Valley structure, Northwest Co.'s No. 1 Calgary & Edmonton-Longview, LSD 5, Section 27-18-2w5, was shot with 600 quarts and is cleaning out. Nolan Hungerford Royalties' No. 1, LSD 5, Section 34-18-2w5, is below 2,300 feet. It got the cardium marker, dividing the upper and lower Bentons, at a high point, 2,216 feet. Merland Oil Co.'s No. 2, LSD 13, Section 27-18-2w5, is rigged up. Mercury Oils' No. 6, LSD 12, Section 4-19-2w5, at 2,771 feet will not likely resume till December.

Tests in the Foothills

On the Hunter Valley structure west of Olds, Hunter Valley Oil Co.'s No. 1 McLaren, LSD 12, Section 13-31-10w5, is below 4,138 feet and has encountered additional gas.

On the Rickert structure west of Turner Valley, Paramount Oils' No. 1, LSD 2, Section 28-18-4w5, is temporarily shut down at 3,220 feet.

On the Highwood-Sinclair structure, south of Turner Valley, Canadian Royalties' No. 1 Banner, LSD 6, Section 34-17-3w5, is working on casing at 625 feet.

On the Watson structure west of Lundbreck, American interests represented by A. W. Hunter are digging cellar for Mar Jon Oil Co.'s No. 4 Maxmont, in LSD 10, Section 20-9-2w5. Negoitations have been carried on by E. M. Craig, president of Mar Jon Oil Co. Location secured from Raven Oils, Ltd., offsets Raven's No. 1, drilling in the same section. The Maxmont interests have secured 160 acres from holdings of the Raven group in addition to land secured from Mar Jon Oil Co. and have also filed on acreage selected by their own geologist. They have bought the Royalite Oil Co.'s No. 4 rig in the Central Valley Field. Operations will be under supervision of Mr. Winger.

Raven Oils' No. 1, Section 20-9-2w4, is below 1,400 feet with some gas production. Mar Jon Oil Co.'s No. 3 Prairie, LSD 3, Section 4-10-2w4, is drilling.

In the old Oil City Field, Waterton Lakes Park, Oil City Royalties' No. 1 Patrick, Section 30-1-30w, is in a black limestone below 1,980 feet after running casing to 1,955 feet.

There are prospects of a resumption of

(Continued on Page 68)

Improved Conditions Are Reported in California; Drilling Operations and Exploration Increase

By L. P. STOCKMAN
Staff Correspondent, California Fields

LOS ANGELES, Calif., Oct. 15.—Splendid co-operation on the part of crude oil producers, which has greatly enhanced the curtailment program, and effective operation of the Pacific Coast Petroleum Agency is being manifested by improved conditions in the oil industry and this is likewise being reflected by equipment manufacturers. The Union Oil Co.'s excellent financial report for the third quarter of the current year, which was released a few days ago, is tangible evidence of improved conditions and this together with increased drilling in proved fields and wildcat exploration reflects a decided turn for the better. It is quite obvious, of course, that this satisfactory condition will only prevail as long as curtailment is effective and the marketing agreement adhered to. If producers and refiners continue their constructive efforts during the next six months they will be able to use black ink instead of red when balancing up the books for 1934 and when preparing the statement for the first quarter of next year.

Inclusion of the first three months of 1935 is vitally important because of the prevalence of price disturbances in the marketing end of the business every spring during the past several years. By the time the marketing agreement runs out, conditions should be much improved although it is not likely that crude oil curtailment will be discontinued. Notwithstanding that some refiners are of the opinion that the marketing agreement will be junked upon expiration of the time limit next June, it would not be surprising if it is again extended regardless of the outcome of the petroleum code.

Drilling Increasing

Exploitation of proved fields and wildcat exploration in potentially productive areas is holding up in good shape and from present indications should show a consistent increase during the next several months. Prospectors are not finding it as easy to uncover new fields as has been the case heretofore and as a result drilling operations are increasing in productive fields and a corresponding gain is being shown in exploration work. Up in Fresno County, the Western Gulf is nearing the critical depth in its second wildcat which is located in Section 11-17-15 on land leased from the S. P. Land Co. TheWestern Gulf's first test in this area was located in Section 15-17-15 but was abandoned as a duster at 8,868 feet. Sufficient showings were encountered to justify a second test, however, and the company accordingly moved to a new location in Section 11. The present test is approximately 3,000 feet due east of the first hole and markers logged to date indicate that the second test is running about 300 feet higher structurally.

The Western Gulf has about 100,000 acres leased up in a solid block in this area and is consequently leaving no stone unturned in its efforts to make a conclusive test. It is quite obvious that the company would be sitting on top of the world if it should discover a new field as it would have practically the entire amount of potentially productive acreage under its control. Roughly the company has expended about $500,000 in its exploration work in this section of the State up to the present time. On 100,000 acres, the company has paid approximately $200,000 in yearly rentals and something like $300,000 drilling expenses which were incurred in the drilling of well No. 1 and the drilling of well No. 2 down to 6,500 feet. A number of operators do not give the Western Gulf an outside chance of getting production but do not be surprised if the company ultimately develops commercial production. The first test showed good promise but the oil sand was not sufficiently thick enough to show production. The Western Gulf's problem is to determine where the top of the structure is and this may require the drilling of another well. The company is playing for big stakes and is consequently justified in its drilling program even though it has been rather costly up to date.

San Joaquin Basin

The Texas Co. has staked location for a new wildcat to be drilled in the Temblor Hills section of Kern County and the well will be located in Section 29-29-21. This area is rather intriguing and the Texas Co.'s test may bear watching during the course of work. In addition to this wildcat, the company has tentatively decided to drill another outpost in the Coalinga Field of Fresno County where it abandoned a test in Section 1-21-14 a few months ago. The new outpost will be located in Section 35 in close proximity to the original location decided upon. Before drilling operations got under way, the company decided to move over to Section 1 but failed to develop production.

It has been a long time since any drilling of consequence has been undertaken in the Elk Hills Field of Kern County, but this field is coming back into the limelight again due to preparations under way by the 101 Oil Co. to drill a wildcat or outpost in Section 5-30-24. This test appears to have certain merits and might prove satisfactory if carried deep enough as this field has not been thoroughly prospected as far as depth is concerned. The Standard Oil Co. has drilled the deepest hole drilled in the Elk Hills Field up to the present time but this test, located on the Packard lease, did not mean much as the property is located outside the proved limits of the field. The Badger Oil Co. has resumed drilling operations on its test in the Tejon-Wheeler Ridge sector but has not yet encountered anything of importance down to 6,180 feet.

Other Wildcats

Semi-Tropic Ridge, which has enticed a number of prospectors on several occasions to undertake exploration work, is to be given another test in the near future. This time it will be the Standard Oil Co., which has decided, after lengthy deliberation, that its acreage offers some promise of resulting in production. The Standard's test will be located on the Hill lease in Section 8-27-23 and since the well will be located in the northeast corner of the lease it is far enough removed from any of the dry holes to justify exploration. Up at Chowchilla, in Madera County, the Pure Oil Co. has reached a depth of 8,030 feet in a wildcat in Section 7-10-14 but has not yet logged anything which would justify a production test. Several tests have been drilled in this section of the State but the outcome has been negative up to date.

The Milham Exploration Co., discoverer of the Kettleman North Dome Field and the Buttonwillow gas field, is drilling a third test up in San Joaquin County not far from Tracy where the Union Oil Co. drilled a deep dry hole a few years ago. The Milham has probably found enough indications to justify the drilling of another hole and is proceeding to do it. The first hole was carried rather deep but the second was abandoned at a shallow depth upon picking up a prominent marker. This exploration work is located near the Hetch Hetchy tunnel where substantial showings of gas were encountered while this subterranean passage was being bored to facilitate the pumping of water from the high Sierras to San Francisco. The Home Oil Co. is making normal progress in the drilling of a wildcat test near McFarland in Kern County, but the bit is not yet deep enough to pick up the pay. In the McKittrick area, the Standard Oil Co. is rotating ahead in its No. 45 in Section 15-30-22 at 4,775 feet but has not yet found anything of importance since passing through the gas zone found higher up in the hole. The Union Oil Co. has taken protection acreage in this field despite the fact that the Standard's test is being drilled strictly in search of commercial gas production.

Coastal Region

Exploration work in the coastal region, comprising Ventura, Santa Barbara and San Luis Obispo Counties, has not been especially successful up to the present but this condition could easily change over night. The most important well in this area right now is the Property Service Corp.'s No. 3 Dabney Lloyd in the extreme eastern end of the Ventura Avenue Field. This well is not a wildcat by any stretch of the imagination but it is a very important outpost and one which will bear watching during the next few weeks. The Property Service Corp., a Ralph Lloyd company, started this outpost at the suggestion of Mr. Lloyd and it looks like commercial production will

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	Sept. 30		Sept. 23			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Fuel oil	272,173	38,882	118,885	16,984	10,432,469	1,060,666
Diesel and gas oil	77,113	11,016	.....	.....	1,098,288	1,200,559
Gasoline	.....	.....	140,286	20,041	5,833,285	5,084,190
Kerosene	.....	.....	70,050	10,007	798,453	618,966
Asphalt	.....	.....	.....	.....	70,019	12,179
Other finished oil	.....	.....	.....	.....	54,778	75,318
Other unfinished oil	.....	.....	.....	.....	.....	72,534
Foreign exports—						
Crude oil	129,626	18,518	199,077	28,440	5,994,825	5,674,866
Fuel oil	205,731	29,390	501,998	71,714	9,712,373	6,248,125
Diesel and gas oil	92,544	13,221	.....	.....	3,056,117	2,501,483
Gasoline	84,517	12,074	13,894	1,842	3,277,786	4,387,764
Kerosene	14,945	2,136	27,684	3,955	1,358,947	1,508,221
Other finished oil	.....	.....	34,426	4,918	37,955	12,086
Other unfinished oil	10,705	1,529	.....	.....	221,205	66,375
Coastwise-domestic—						
Crude oil	62,590	8,941	67,590	8,941	6,230,432	5,627,398
Fuel oil	74,106	10,587	245,122	35,017	7,153,772	7,658,024
Diesel and gas oil	11,759	1,680	1,536	219	553,059	889,570
Gasoline	229,814	32,831	168,490	24,070	9,679,450	9,669,436
Kerosene	4,738	677	1,846	264	116,246	153,320
Naphtha distillates	.....	.....	.....	.....	.....	27,651

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Fuel oil	.....	.....	.....	.....	110,650	.....
Diesel and gas oil	.....	.....	.....	.....	526,288	511,897
Gasoline	.....	.....	.....	.....	290,825	804,548
Kerosene	.....	.....	.....	.....	276,412	482,430
Lubricants	.....	.....	.....	.....	34,695	33,934
Foreign exports—						
Crude oil	.....	.....	.....	.....	1,492,701	1,496,106
Fuel oil	.....	.....	.....	.....	1,581,207	1,274,340
Diesel and gas oil	.....	.....	.....	.....	1,085,850	335,357
Gasoline	.....	.....	.....	.....	2,411,704	3,187,310
Kerosene	87,092	12,442	.....	.....	876,266	841,225
Lubricants	.....	.....	.....	.....	143,157	101,472
Other finished oil	.....	.....	.....	.....	2,760	3,745
Other unfinished oil	.....	.....	.....	.....	5,750	26,378
Coastwise-domestic—						
Fuel oil	47,342	6,763	.....	.....	4,294,762	2,747,759
Diesel and gas oil	.....	.....	.....	.....	119,636	179,250
Gasoline	142,893	30,413	29,422	4,203	4,042,225	3,045,495
Kerosene	.....	.....	.....	.....	64,805	95,204

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well, location—	S.T.R.	Depth	Status
Clayton, G. L., No. 1 Cerritos, Los Angeles Co.	31- 3-12	6,698	fishing D/P
Kelly & Son., No. 1 Torrance, Los Angeles Co.	7- 4-13	6,433	suspended
Woodward Oil Co., No. 1 Athens, Los Angeles Co.	12- 3-14	5,543	suspended
Houser, G. W., No. 1 Athens, Los Angeles Co.	18- 3-14	4,037	cleaning out
Scientia Oil Co., No. 1 Inglewood, Los Angeles Co.	7- 2-14	3,375	suspended
Plymouth Oil Co., No. 1 Inglewood, Los Angeles Co.	8- 2-14	5,062	suspended
Wilshire Oil Co., No. 2 Potrero Deep, Los Angeles Co.	27- 2-14	7,985	fishing D/P
Fourl, C. W., No. 1 Del Rey, Los Angeles Co.	27- 2-15	6,050	sd. sh. drilling
Big Ben Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	....	material
Staple Oil Co., No. 1 Manhattan, Los Angeles Co.	24- 3-15	4,600	gr. sh. drilling
Standard Oil Co., No. 1 Montebello Deep, Los Angeles Co.	6- 2-11	7,900	gr. sd. drilling
St. Helens, No. 1 Montebello Deep, Los Angeles Co.	6- 2-11	7,038	prod. test
Fullerton Oil Co., No. 1 Montebello Deep, Los Angeles Co.	6- 2-11	7,055	pump 100 b.d.
Shively, N. O., No. 1 Puente Hills, Los Angeles Co.	23- 2-10	rig	suspended
Pressel & Tail, No. 1 Puente Hills, Los Angeles Co.	30- 2-9	3,741	br. sh. drilling
Barstow Oil Co., No. 2 Saugus, Los Angeles Co.	35- 5-16	2,400	suspended
International Dev. Co., No. 1 Saugus, Los Angeles Co.	34- 5-16	3,385	hd. sd. drilling
Black Eagle Oil Co., No. 1 Huntington, Orange Co.	tideland	4,021	reaming
Explorers Drlg. Co., No. 1 Fairview, Orange Co.	9- 6-10	945	plug 438; idle
Nuoli Co., No. 1 Newport, Orange Co.	29- 6-10	6,485	fishing D/P
B. & B. Oil Co., No. 1 Newport, Orange Co.	19- 6-10	rig	suspended
Piatt & Collins, No. 1 Costa Mesa, Orange Co.	14- 6-10	2,566	suspended
Mid-Rich Drlg. Co., No. 1 Atwood, Orange Co.	26- 3-9	3,942	br. sh. drilling
Bridger, J., No. 1 Coyote, Orange Co.	15- 3-10	5,410	suspended
Great American Pet., No. 2 East Coyote, Orange Co.	19- 3-9	1,000	sd. sh. drilling
Great American Pet., No. 1 Chino, San Bernardino Co.	18- 2-8	2,462	suspended
Great American Pet., No. 2 Chino, San Bernardino Co.	18- 2-8	3,152	suspended
Great American Pet., No. 3 Chino, San Bernardino Co.	7- 2-8	200	sd. sh. drilling
Tehama Pet., No. 1 Santa Ana Canyon, S. Bernardino Co.	33- 2-8	2,720	reaming
San Diego Pet. Co., No. 1 Chula Vista, San Diego Co.	32-18-2	5,465	gr. sh. drilling
Edmonds, E. A., No. 1 Trustee, San Diego Co.	29-15-3	1,930	sd. sh. drilling
Everts Drlg. Co., No. 1 Camp Kearny, San Diego Co.	23-15-3	540	sd. sh. drilling
Great Coastal Oil Co., No. 1 Elsinore, Riverside Co.	36- 5-5	rig	suspended

be developed. The Associated Oil Co. is doing the actual drilling and sufficient oil sand has been found to justify the landing of a string of casing preparatory to an early test. No. 3 Dabney Lloyd is located in an area about 4,000 feet east of the most easterly producer in the field and is about 2,500 feet east of Hall's Canyon, which has generally been regarded as marking the eastern limits of production. Correlation work indicates that No. 3 Dabney Lloyd will be an extension of the Ventura Avenue Field rather than proving up another productive area to the east.

Up in Shiells Canyon in Ventura County, the Texas Co. has been experiencing considerable trouble with gas in No. 128 Shiells and the company was obliged to pump in 25 sacks of weight material in order to kill gas pressure at 3,903 feet. The bit in this well is in the Sespe and the outlook is exceptionally promising for completion of a good well. The Petroleum Securities, which is drilling a wildcat in the Los Alamos district in conjunction with the Hancock Oil Co., has suspended drilling operations at 4,808 feet due to an unfavorable outlook. If the Hancock Oil Co. does not desire to take over the hole and drill ahead it will be abandoned in the near future. In the Goleta area, north of the Goleta gas field, the North American has abandoned No. 1 Pinkham as a duster at 2,480 feet. The Royalty Service Corp., which is drilling a test in Section 35-9-32 in the Los Alamos district, has reached a depth of 3,030 feet in No. 1 Sisquoc. The General Petroleum found the Sespe apparently barren in No. 11 Erburu, an outpost in the Capitan Field at 1,869 feet, and the hole will probably be listed for abandonment in the near future.

Mountain View

The Mohawk Oil Co. added a new well to its list of producers in the Mountain View Field of Kern County early this week when No. 2 McKeehan was brought in under a natural flow doing 1,924 bbls. of clean 31.1 gravity oil and 2,450,000 feet of natural gas per day. This new well was bottomed at 5,505 feet and finished with a 6⅝-inch liner, including 143 feet of perforated and 5,404 feet of 3-inch tubing. The Mohawk has just spudded in No. 3 Clendennen and is building rig for No. 5 Hood, which is expected to be started in the immediate future. The Sovereign Oil Co. successfully recompleted No. 2 San Joaquin Development, a recent completion, and this well was returned to production flowing 384 bbls. of relatively clean 32.6 gravity oil per day. The Sovereign's well, bottomed at 6,203 feet, was deepened from 6,163 feet, the original completion depth, and the 6⅝-inch water string recemented at 6,050 feet.

The Mountain View Field will probably be rather active during the next several months as a number of new wells have either already got under way or are scheduled to begin making hole within the next week. These new wells include Associated Oil Co.'s No. 1 Di Giorgio and No. 1 Nunez; Hancock Oil Co.'s No. 1 Miller; Otis Hoyt's No. 1 Ross; Jergins Trust's No. 2 Bloemer; Sovereign Oil Co.'s No. 3 S. J. Dev.; Standard's No. 2 Wible; Union's No. 3 Kernco and No. 2 Wible and the Texas Co.'s No. 3 Smith. Some of these wells have already been spudded in but they should all be making hole in the immediate future. Considerable interest attaches to the drilling of No. 3 Kernco of the Union Oil Co., as this well is the most westerly location staked in the field up to date. It is about one location west of No. 2 Kernco, which showed substantial production upon completion a few weeks ago.

Montebello

The Montebello Field of Los Angeles Basin will probably be the forgotten field in another few months as drilling operations are nearing the point where the wells will either be productive or suspended because of the inability to develop commercial production. It has been a long time since any projected deep zone wells have been started in this field, and judging by the present status, it will be a long time before any more work is undertaken. The Fullerton Oil Co. finished its No. 28 McGinley on the beam following the failure to develop a natural flow. This new well is pumping 130 bbls. per day from 7,055 feet. Fullerton's No. 29 McGinley has cored a poor oil sand at 7,174 feet and preparations are being made to run a formation tester. This company paid the McGinley Oil Co. approximately $300,000 for this lease during the boom immediately following completion of the Universal Consolidated's deep zone discovery well.

The St. Helens Petroleum Co. has not had much luck in finishing its No. 6 P. & B., a projected Cruz zone completion, as it has failed to show anything on a compressor at 7,038 feet. Preparations are being made to put the well on the beam in the hope that it may show at least some production. The Standard's deep well in the Montebello Field, No. 75 Baldwin, is rotating ahead at 7,897 feet with not even a minor showing to its credit.

Santa Fe Springs

The Union Oil Co.'s field crew at Santa Fe Springs got the surprise of its life early this week when No. 50 Bell got away and ran wild for several hours before it was brought under control. The state highway was quickly blocked off to prevent ignition of the gas by some passing automobile and the entire field force called out. This well was one of those forgotten wells which were drilled during the period of active development and then dropped down to the point where it was necessary to put it on the beam. A few weeks ago the company decided to reperforate the liner in an effort to stimulate production. The liner was according perforated and the holes probably opened up some sand that had been cased

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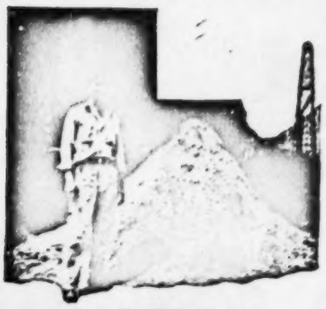

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IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S.T.R.	Depth	Status
General Pet., No. 11 Capitan, Santa Barbara Co.	32- 5-30	1,869	Sespe 1,750
Shell Oil Co., No. 3 Capitan, Santa Barbara Co.	32- 5-30	2,274	cmtd. 2,211
Petroleum Sec., No. 1 Los Alamos, Santa Barbara Co.	6- 7-32	4,808	to abandon
Royalty Ser. Corp., No. 1 Los Alamos, Santa Barbara Co.	35- 9-32	3,073	sd. sh. drilling
Union, No. 2 Santa Maria, Santa Barbara Co.	24-10-34	2,389	cleaning out
Signal Oil & Gas Co., No. 1 Elwood, Santa Barbara Co.	tideland	3,976	fish for slip
Barnsdall-Rio Grande, No. 3 Doty Elwood, S. Barbara Co.	15- 4-29	5,732	redrig. 3,420
East Elwood Pet. Co., No. 1 Elwood, Santa Barbara Co.	14- 4-29	3,512	suspended
Shell Oil Co., No. 1 Goleta, Santa Barbara Co.	20- 4-28	4,295	gr. sh. drilling
North American, No. 1 Goleta, Santa Barbara Co.	10- 4-28	2,480	abandoned
Standard Oil Co., No. 2 Goleta, Santa Barbara Co.	17- 4-28	4,850	redrig. 3,406
Ortega Oil Co., No. 1 Summerland, Santa Barbara Co.	16- 4-26	3,829	whipstocking
Woodrow Pet., No. 1 Rincon, Ventura Co.	4- 3-24	7,612	redrig. 6,020
Continental, No. 3 San Miguelito, Ventura Co.	23- 3-24	6,944	hd. sh. drilling
Texas Co., No. 128 South Mountain, Ventura Co.	4- 3-19	3,903	heavy gas
Oil Ridge Oil Co., No. 1 Fillmore, Ventura Co.	1- 4-19	1,253	cleaning out
Bolsa Chica Oil Co., No. 2 Piru, Ventura Co.	4- 4-18	rig	rigging up
Piru Oil Co., No. 1 Piru, Ventura Co.	14- 4-18	1,200	rig rotary eqp.
American Drlg. Co., No. 1 Simi, Ventura Co.	6- 2-17	903	cmtd.; idle
Dawson Oil Co., No. 1 Simi, Ventura Co.	5- 2-17	1,486	sd. sh. drilling
Rancho Oil, Inc., No. 1 Ojai, Ventura Co.	18- 4-23	1,908	sd. sh. drilling
Continental, No. 1 Ojai, Ventura Co.	12- 4-23	rig	rigging up
Prop. Service Corp., No. 1 Lloyd, Ventura Co.	24- 3-23	6,928	looks good
Kirk, W. A., No. 1 Sulphur Mountain, Ventura Co.	21- 4-22	2,400	to plug back
Mosher, J. W., No. 1 Santa Paula, Ventura Co.	22- 4-21	2,300	reaming
Standard Oil Co., No. 1 McKittrick, Kern Co.	15-30-22	4,796	gr. sh. drlg.
Casa Mira Oil Co., No. 1 Belridge, Kern Co.	29-28-20	6,131	hd. sh. drilling
General Pet., No. 1 South Belridge, Kern Co.	30-28-21	11,377	suspended
Union Oil Co., No. 18 North Belridge, Kern Co.	26-27-20	8,523	mill on D/P
Standard Oil Co., No. 1-A North Belridge, Kern Co.	26-27-20	1,480	sd. sh. drilling
Amerada Pet., No. 1 Blackwells Corner, Kern Co.	17-26-19	2,722	cleaning out
Home Corp., No. 1 McFarland, Kern Co.	16-26-27	1,976	sd. sh. drilling
Ohio Oil Co., No. 1 McVan, Kern Co.	22-27-27	1,364	wet; recmtd.
Peli Oil Co., No. 1 McVan, Kern Co.	14-27-27	rig	rigging up
P. H. Greer Co., No. 1 Mountain View, Kern Co.	9-31-29	....	location
Hancock Oil Co., No. 1 Mountain View, Kern Co.	14-30-28	rig	rigging up
Associated Oil Co., No. 1 Mountain View, Kern Co.	3-31-29	rig	rigging up
Associated Oil Co., No. 2 Mountain View, Kern Co.	14-30-28	rig	rigging up
Union Oil Co., No. 3 Mountain View, Kern Co.	15-30-28	rig	rigging up
Texas Co., No. 1 Mountain View, Kern Co.	14-30-28	5,488	O. S. cmtd.
Barnsdall, No. 2 Mountain View, Kern Co.	32-30-29	5,715	P.B.-5,625
Hogan Pet., No. 5 Mountain View, Kern Co.	32-30-29	6,287	recmt. 6,191
Standard Oil Co., No. 3 Mountain View, Kern Co.	32-30-28	5,449	cmtd. 5,408
Wood-Callahan, No. 1 Mountain View, Kern Co.	20-30-29	5,604	pd. 5,464; ldg
Gilco, Inc., No. 2 Edison, Kern Co.	23-30-29	496	sd. sh. drilling
Jergins Trust, No. 1 Edison, Kern Co.	22-30-29	3,815	cleaning out
Jergins Trust, No. 2 Edison, Kern Co.	14-30-29	2,662	gr. sd. drilling
Jergins Trust, No. 3 Edison, Kern Co.	14-30-29	rig	suspended
Shell Oil Co., No. 1 Edison, Kern Co.	16-30-29	4,276	base complex
Edison Oil Co., No. 1 Edison, Kern Co.	16-30-29	3,627	cmtd. 3,240
Centralia Oil Co., No. 1 Edison, Kern Co.	26-30-29	2,200	cleaning out
Ohio Oil Co., No. 1 Edison, Kern Co.	26-30-29	2,173	abandoned
General Pet., No. 1 Edison, Kern Co.	14-30-29	mtl.	bldg. rig
General Pet., No. 2 Edison, Kern Co.	26-30-29	mtl.	bldg. rig
Lee Oil Co., No. 1 Edison, Kern Co.	6-30-29	3,185	hd. sd. drilling
Tejon Ridge Oil Co., No. 1 Comanche, Kern Co.	23-32-29	1,350	sd. sh. drilling
Standard Oil Co., No. 1 Semi-Tropic, Kern Co.	8-27-28	....	location
101 Oil Co., No. 1 Elk Hills, Kern Co.	5-30-24	rig	rigging up
Texas Co., No. 1 Temblor, Kern Co.	29-29-21	....	location
Badger Oil Co., No. 1 Wheeler Ridge, Kern Co.	31-11-19	6,186	sd. sh. drilling
Russ Oil Synd., No. 1 Kingsburg, Fresno Co.	28-12-11	4,438	cleaning out
Bergman, Harry, No. 1 Kingsburg, Fresno Co.	13-12-11	6,138	suspended
Union Oil Co., No. 1 Lillis-Kettleman, Fresno Co.	24-21-16	10,944	sidetrack D/P
Western Gulf, No. 2 S. P., Fresno Co.	11-17-15	6,504	sd. sh. drilling
Farrel Pet., Well No. 1, San Luis Obispo Co.	18-31-12	1,256	hd. sh. drilling
Willett Oil Co., No. 2 Cholame, San Luis Obispo Co.	10-25-15	2,202	suspended
Commonwealth Consd. Gas, No. 1 Tulare Lake, Kings Co.	21-22-20	2,490	suspended
Commonwealth Consd. Gas, No. 2 Tulare Lake, Kings Co.	21-22-20	rig	rigging up
Kettleman Pac. Oil Co., No. 1 Tulare Lake, Kings Co.	11-22-16	813	sd. sh. drilling
Weller, Carl, No. 1 Tulare Lake, Kings Co.	11-22-16	1,420	suspended
Trico Oil & Gas Co., No. 1 Atwell, Kings Co.	22-24-22	2,712	suspended
Trico Oil & Gas Co., No. 2 Atwell, Kings Co.	2-25-22	2,200	sd. sh. drilling
Buttes Oilfields Co., No. 2 Marysville, Sutter Co.	26-16-1	5,515	hd. sd. drilling
Milham Exploration Co., No. 3 Tracy, San Joaquin Co.	24- 2-4	1,312	sd. sh. drilling
Pure Oil Co., No. 1 Chowchilla, Madera Co.	7-10-14	8,025	sd. sh. drilling
Northern Counties Pet., No. 1 Tehama, Tehama Co.	25-24-3	1,312	hd. sh. drilling

off or plugged up because as soon as the crew came out of the hole the well came in with a bang. It blew in doing about 100 bbls. of crude oil and approximately 1,000,000 feet of natural gas per hour and proceeded to paint up the landscape and a number of automobiles that were parked in the immediate neighborhood. Fortunately it was brought under control before any serious damage was sustained.

Two new wells were finished in the Long Beach Field of Los Angeles Basin early this week and both of them registered commercial production. Russell Coffman's No. 1 Signal, bottomed at 4,180 feet and finished with a 4¾-inch liner carrying 90 feet of perforated, was brought in pumping 349 bbls. of exceptionally clean 29.4 gravity oil per day. The Ladden Oil Co.'s well No. 1 was finished at 4,778 feet and completed pumping 295 bbls. of clean 28.8 gravity oil per day. Four new rigs were erected in this field during the current week and they should begin making hole in the near future. In the Playa Del Rey Field, the Union Oil Co. is driving piles preparatory to erecting a new rig for No. 7 Del Rey, but since good progress is being made this well should begin making hole along about the end of the present month. Up on the Del Rey palisades C. W. Fourl is drilling ahead in his No. 1 a little below 6,100 feet, and the Big Ben Oil Co. is putting in cement foundation for a test to be drilled in Section 27-2-15.

Inglewood

The Standard Oil Co. finished a fine well in the Inglewood Field of Los Angeles Basin this week when well No. 71 on Los Angeles Investment Lease No. 1 was brought in flowing 1,144 bbls. of clean 24.6 gravity oil per day from 3,250 feet. This new well was plugged back to 3,200 feet just prior to completion and the hole was finished with an 8⅝-inch liner, including 407 feet of perforated. The Standard's next completion in this field should be No. 105 Baldwin, which is at present rotating ahead in a hard sandy shale at 3,990 feet. The Texas Co. is rigging up rotary drilling equipment in No. 1 Moynier preparatory to redrilling and deepening it to the second producing horizon.

The Wilshire Oil Co. had the misfortune to run into a fishing job in No. 2 Potrero, a deep test in the Potrero Field of Los Angeles Basin and consequently progress will be retarded pending recovery. This well, just previous to the development of mechanical trouble, had cored what appeared to be a very promising oil sand and the outlook seemed favorable for production. This is the second delay which has held this well back and some of the boys have suggested that the next time the company runs into an oil sand that the crew be allowed to let the well blow out. Several weeks ago the company logged a substantial showing but pumped in a lot of weight material to keep the well under control. This procedure worked out very well except for the fact that when the company went back into the hole it could not find where the gas pressure came from.

The General Petroleum got a pleasant surprise in the Brea Olinda Field early this week when No. 8-A Tonner, a new well, was finished flowing 1,090 bbls. of 25.1 gravity oil and 600,000 feet of natural gas per day. This new well was bottomed at 4,070 feet but was plugged back to 3,700 feet previous to completion. The Standard Oil Co. is expected to complete No. 116 Murphy-Coyote in the West Coyote Field some time within the next 15 days as the bit was rotating ahead in the pay a few days ago at 5,776 feet. The company is putting in cement foundation for a new rig to be designated as No. 120 Murphy-Coyote. Completions have not been especially numerous in the Dominguez Field of Los Angeles Basin but, judging by the amount of work under way, operators will make up for lost time within another month or so.

Edison

It becomes more evident each week that operators in the Edison Field will find it necessary to select future locations rather carefully if they expect to avoid drilling dry holes. For several weeks it looked like one might be able to stand at the crossroads and toss a baseball to select the location for a new well, but this state of affairs no longer holds true. Promiscous drilling has resulted in the drilling of several dry holes and operators are now feeling their way along in order to eliminate or minimize the possibility of drilling a duster even though the drilling cost is relatively low. Three new wells are being started in the Edison Field and one of them has just been spudded in. This was Gilco's No. 2 Stuart-Gerard in Section 23-30-29, on which lease the company finished a small producer several weeks ago. If No. 2 Stuart-Gerard shows commercial production, the company will immediately begin drilling operations on well No. 3, the rig for which is now in course of construction. The Shell found the basement complex in No. 1 Cauley in Section 16-30-29 at 4,276 feet and while the hole showed some gas cut mud higher up in the hole it appears quite probable that this well will be listed for abandonment in the near future.

The Standard got another surprise in the Midway-Sunset Field of Kern County this week when well No. 93-11-D blew in flowing gas and a spray of oil from 2,662 feet after the hole had been plugged back from 2,998 feet. The crew killed the well and immediately started preparations to bring it in under control. Last week, Standard's well No. 112-9-D blew in as a gasser but was subsequently shut in. There has not been any diminution of development work in the Mount Poso Field, and judging by the number of locations staked, we may anticipate an active winter as far as this field is concerned. Drilling operations under way in this district do not reflect any indication of competitive drilling but rather reveal that operators having undeveloped

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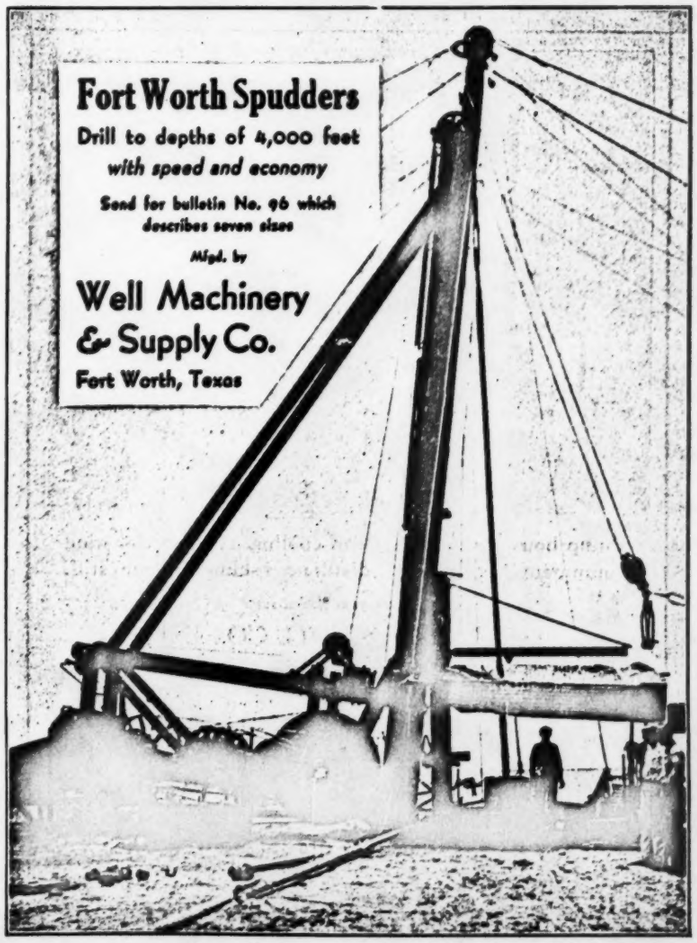
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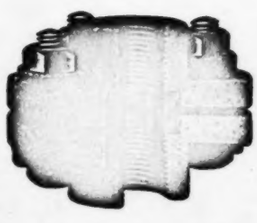

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acreage have decided to prosecute additional work. This drilling campaign has been going on all year in this field, but in spite of the several excellent completions registered field production has not shown any substantial increase as operators are strictly conforming with curtailment regulations. The Belridge Oil Co. is expected to finish a new well in the deep Eocene formation in the North Belridge Field within the next 30 days as its well No. 16-35 is rotating ahead in the pay at 8,310 feet.

Canadian Fields

(Continued from Page 64)

drilling in the Moose Mountain area west of Calgary and north of the Turner Valley Field. Graystone Petroleum Consolidated's No. 2 Signal Hill, LSD 9, Section 34-23-5w5, shut down some months ago after redrilling to 1,710 feet. A smaller hole, originally drilled to below 4,200 feet, encountered encouraging oil shows. Farther south, on the Birch Ridge structure, Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, has done some drilling this year, but is standing at 4,375 feet. F. D. Lundy and associates of Vancouver have a test rigged in LSD 3, Section 6-22-4w5. On the Moose Dome structure, farther south and west, Moose Oils' No. 1, LSD 16, Section 29-22-6w5, got strong shows of wet gas in drilling to 2,810 feet. The gas flow was lost owing to drilling troubles but efforts are being made to arrange for a second test.

Aldersyde Test

On the Aldersyde structure east of Turner Valley, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-28w4, has casing run also to bottom at 6,285 feet. It is thought to be on top of a crude oil sand and heavy gas pressure has been encountered with showings of oil.

Northern Alberta

In the Athabaska district, northern Alberta, Athadome Oils' No. 2, LSD 3, Section 15-66-23w4, is being abandoned. Some time ago Athadome's No. 3 was located on the Peace River Highway 4 miles west of Athabaska landing.

Border Fields

On the Del Bonita structure in southern Alberta, Lloyd Clinch and associates are starting their No. 1 in LSD 10, Section 19-1-21w4. O. R. Lang has the drilling contract and cable tools will be used. Clinch's No. 1 is on acreage of Multi-Structure Oil Holdings, Ltd., and is financed by British Columbia capital. Terminal Oil Co.'s No. 1, NE Section 18-1-21w4, on the same structure, is starting work.

Drilling in Saskatchewan

On the Dirt Hills structure in southern Saskatchewan, Pine River Petroleums' No. 1, LSD 8, Section 23-12-24w2, is below 4,200 feet.

In the Simpson area, Simpson Oil Co.'s No. 2 has spudded and will drill through the winter.

Anaconda Directors

At a recent meeting of the directors of the Anaconda Oil Co. of Calgary the following officers were elected: President, A. C. Johnson; first vice president, O. L. Reinecke; second vice president, H. H. Gilchrist; managing director and secretary-treasurer, A. J. Scott.

Drilling in Ontario

In Lambton County, Ontario, American Engineering Co.'s No. 4, I. C. Kerr farm, Lot 21, Concession 1, Moore Township, is at 814 feet and running casing. In the Dawn Field, Lambton County, Union Gas Co.'s No. 34 Morehouse, Lot 25, Concession 5, Euphemia Township, has deepened from 1,600 to below 1,860 feet without increasing production. Union's No. 78, NW Lot 29, Concession 11, Dawn Township, is below 900 feet. In Kent County, F. H. Stover & Son's No. 2, Sam Antaya farm, is the Dover Field, is below 1,300 feet. Ajax Oil & Gas Co.'s No. 9, Johnston farm, Dover Township, is below 1,000 feet. In Raleigh Township, Gas Producer's Syndicate's No. 1, Gilbert Pardo farm, 2½ miles west of Cedar Springs, is below 100 feet.

A Detroit syndicate is reported leasing acreage near Wardsville, in Middlesex County, with a view to drilling for shallow oil.

In Haldimand County, Ontario, Empire Natural Gas' No. 10 has been brought in with initial flow of approximately 200,000 feet a day. Empire's No. 11 is being finished. Empire's No. 12 will probably spud next week. New equipment is being used on the latter test with which the crew expect to cut the drilling record for 1,000 feet from 14 to 12 days.

Kansas Fields

(Continued from Page 62)

17 Wilson, C SE NE Section 1-26-1w, was acidized in Kansas City lime at 2,568-78 feet and later pumped 140 bbls. in 24 hours. It was not completed.

Paul White, trustee's No. 2-B Gorman, C8L NW NW SW Section 36-26-1, was re-treated with acid and pumped 124 bbls. in 24 hours. It was not completed.

Trees Oil Co. and Derby Oil Co. abandoned No. 1 McMinn, NW SW NE Section 36-26-1. It was a hole full of water from Wilcox sand at 3,378-3,430 feet, total depth.

Shell Petroleum Corp. was drilling at 1,625 feet in No. 9 Fisher, 990 feet south and 1,344 feet west of NE cor. Section 15-26-2.

Harvey County

Marathon Oil Co.'s No. 8 Duerkson, NE SW NE Section 19-22-3w, Hollow Pool, Harvey County, had Wilcox sand at 3,579-89 feet, total depth, and found salt water. It was plugged back to Hunton lime at 3,347-52 feet and acidized and made a 13-bbl. pumper. It was completed.

Imo Oil & Gas Co. has rig up for No. 1 Sperling, SE NE NE Section 23-22-2w.

Greenwood County

Paulhamus and others abandoned No. 1-A Leedy, SE SW NW Section 25-22-9, at 1,035 feet because of a hopeless fishing job. Slick, Pryor & Lockhart abandoned the location for No. 2 Leedy, SE SW NE Section 25-22-9.

Oko Oil Co. was drilling at 160 feet in No. 21 Sherman-Kelly, NE SW SW Section 14-23-13.

H. A. L. Oil Co.'s No. 3 Life, SW cor. Section 13-26-9, Greenwood County, was completed. It is a 5-bbl. pumper at 1,443-51 feet.

A.S.T.M. STANDARDS

This publication, widely used in the petroleum and allied industries, is a compilation of all test methods, specifications and definitions of terms issued by the American Society for Testing Materials relating to petroleum products and lubricants. The book is sponsored by A.S.T.M. Committee D-2.

The 1934 edition, just issued, consists of 335 pages, describing in their latest form 53 test methods. New standards cover fuel oils, emulsified asphalts, gum content of gasoline, and separation of liquid asphaltic products.

A number of test methods given have been revised this year including the tests for sulphur in petroleum oils by the lamp and bomb methods, color of lubricating oils and petrolatum by A.S.T.M. Union Colorimeter, cloud and pour points test, and test for emulsified asphalt. The abridged volume correction table for petroleum oils is given in its amplified form.

Other widely used petroleum products' tests given cover such subjects as determination of bitumen, burning quality of various oils, carbon residue, color, dilution of crankcase oils, distillation, flash-point, gravity and specific gravity, analysis of grease, melting point, penetration, sampling, sulphur, viscosity, water, etc.

Copies of the report, heavy paper cover, may be obtained at $1.75 each from A.S.T.M. headquarters, 260 South Broad Street, Philadelphia, Pa.

Big Well in Fitts Pool, Pontotoc County, Okla.; Old Well Made Better by Deeper Drilling

By JAMES McINTYRE

The Fitts Pool in southern Pontotoc County, Oklahoma, furnished the feature well of the week. J. E. Crosbie, Inc.'s No. 3 Hardin, C NE SW NE Section 30-2-7, came in Saturday flowing 945 bbls. in one hour through 7-inch casing, with gas at the rate of 5,500,000 feet per day, producing from Wilcox sand pay at 4,240-70 feet. On Sunday the well was reopened and made 2,151 bbls. in 6 hours and 45 minutes, pinched in much of the time and producing through tubing a part of the time against 250 pounds back pressure.

Moore and others' No. 2, C NE SW Section 29-2-7, which was completed in August as a 1,361-bbl. initial producer from sand at 3,951-97 feet, was deepened to 4,042 feet, still in sand, and flowed 191 bbls. the first hour, 152 bbls. the second hour, 135 bbls. the third hour and 125 bbls. the fourth hour. It was then shut in.

Magnolia Petroleum Co.'s No. 1 Dawes Hardin, C SW NW NE Section 30-2-7, Fitts Pool, had sand at 4,360-80, 4,382-90 and 4,298-4,400 feet, total depth. It was washed in and produced 60 bbls. of fluid per hour, 90 per cent water. The source of the water was being studied in order to get a shutoff.

The Texas Co. got a good well in the Crescent Pool, in Logan County, its No. 2 Denny, C SE NE SE Section 33-17-4w. Wilcox sand was found at 6,132-53 feet and the well flowed 1,112 bbls. the first 12 hours.

Slick-Urschel, Inc.'s No. 1 Reed, in the Fish Pool in Hughes and Seminole Counties, flowed 627 bbls. the first six hours from Wilcox sand at 4,185-90 feet, total depth. It is located in SE NE SE Section 31-7-8, in which section the Wilcox discovery well in that pool was completed.

Estimated Production

Estimated production by pool in Oklahoma for the week ending October 13 and for the preceding week follows:

	Barrels	
	Oct. 13	Oct. 6
Allen	7,975	7,250
Blackwell district	4,900	4,900
Bristow-Slick	10,250	10,500
Cushing-Shamrock	13,500	13,500
Chandler district	6,700	6,700
Davenport	750	750
Healdton	9,350	9,400
Hewitt	5,000	5,000
Burbank	9,100	9,100
South Burbank	9,000	9,150
Balance of Osage	25,000	25,000
Lucien	6,825	6,950
Crescent	4,750	3,550
Marshall-Lovell	1,150	1,150
Bowlegs	10,825	8,625
Carr City	6,125	3,800
Earlsboro	10,175	6,800
East Earlsboro	9,725	6,700
South Earlsboro	1,175	725
Little River	14,050	10,500
East Little River	800	575
Seminole	10,225	8,375
East Seminole	1,350	1,275
Searight	3,275	2,400
Maud	1,350	925
Mission	3,400	2,550
St. Louis-Pearson	21,375	16,775
Keokuk	3,625	825
Cromwell	4,600	4,600
Papoose	1,275	1,300
Oklahoma City	184,805	126,050
Asher-West Asher	1,550	1,275
Tatums	6,000	5,500
Tholem-Alechem	4,250	4,250
Duncan	4,600	4,600
Tonkawa-Garber-Thomas	6,450	6,450
Fish	2,400	2,275
Konawa	2,125	2,000
Gray	2,250	1,650
Graham	2,725	2,725
Holdenville	2,700	2,750
Wewoka	4,200	4,200
Tale-Jennings	5,000	5,000
Other pools	62,250	58,900
Total	513,205	420,775

Production in the State rose 92,430 bbls. per day in the past week caused by producers taking a large portion of their allowable in a part of the month. When they have taken the percentage they wish they will then turn off the flow and strike an average close to the Federal allocation.

Osage County

Central Oil Co.'s No. 55, SE SW NE Section 34-29-10, Osage County, is a small completion. It pumped 8 bbls. of oil and 240 bbls. of water from sand at 1,050-81 feet, which had been shot with 120 quarts.

Phillips Petroleum Co.'s No. 1, SW SE NE Section 27-26-6, swabbed 30 bbls. in 24 hours, following a shot at 2,918-30 feet. It was not completed.

Phillips Petroleum Co. and C. W. Titus' No. 1, NW NW NE Section 8-25-6, in the South Burbank area, swabbed 24 bbls. of oil from Burbank sand at 2,780-2,820 feet. It had been drilled to Burgess sand at 2,845-63 feet which was dry.

Champlin Refining Co.'s No. 4 Terrill, SW SW SE Section 15-25-6, also in the South Burbank area, was dry and abandoned at 2,857 feet. Burbank sand was topped at 2,706 feet.

Skelly Oil Co.'s No. 4, SW SW SE Section 16-25-6, was completed. It flowed 356 bbls. of oil in 24 hours through 2-inch tubing from Burbank sand at 2,798-2,824 feet. In the second 24 hours it made 351 bbls. and on the third day 181 bbls.

Sinclair Prairie Oil Co.'s No. 3, NW NW NE Section 21-25-6, swabbed 90 bbls. from Burbank sand at 2,815-38 feet, but was not a completion.

The Texas Co.'s No. 5 Copaby, CSL NE Section 29-25-8, an old well deepened to Burgess sand at 2,442-58 feet, swabbed 25 bbls. in 24 hours.

Turman Oil Co.'s No. 18, CWL NW Section 13-23-8, an old well, was deepened from 2,173 feet to 2,487 feet and plugged back to 1,600 feet, tested dry and was abandoned.

Clint Moore estate's No. 1 NW cor. SE Section 34-21-9, had a small showing of oil and gas at 2,209-58 feet, but it was called a dry hole and was abandoned.

New work first reported in the past week included Texas Co. and Sinclair Oil & Gas Co.'s No. 10 Stroud, SW NE NW Section 30-25-8, spudding; W. C. McBride, Inc.'s No. 37, NW SW NW Section 17-23-12, rigging up to deepen an old well from 1,598 feet; Clint Moore estate's No. 5, NE cor. Section 17-21-9, spudding; Indian Territory Illuminating Oil Co.'s No. 2, NE SE NW Section 30-21-9, a location.

A Panhandle Test

Ben F. Ash and others were drilling at 1,200 feet in a test in Texas County in the Oklahoma Panhandle, No. 1 Guymon townsite, C NE SE Section 30-3n-13e (Cimarron meridian) about midway between the Texas Panhandle and the Kansas state lines.

Garfield County

H. B. Schiller was rigging up No. 1 Stearkel, SE NW SW Section 29-22-3w, Garfield County.

Noble County

In the Polo Pool, Noble County, the Stanolind Oil & Gas Co. and Texas Co.'s No. 2 Voss, NW NE SE Section 28-22-3w, flowed 1,342 bbls. of oil and 1,000,000 feet of gas in 24 hours. Wilcox sand was topped at 4,808 feet; oil at 4,825-30 feet, from which the well flowed 504 bbls. in 24 hours; green shale at 4,850-54 feet; sand at 4,854-63 feet; green shale at 4,863-65 feet; sand at 4,865-73 feet, total depth. The well was completed. There are seven wells drilling in the Polo area.

Sinclair Prairie Oil Co. was building rig for No. 1 Cawood, C SW NW Section 27-20-2w, in the Lucien area.

Creek County

Midco Oil Co. was drilling at 550 feet in No. 8 Land, CEL SE NW Section 12-18-11, Creek County. Bay State Oil Co. was building rig for No. 2 B. T. Harmon, SE NE NE Section 9-17-8, and for No. 3 Harmon, NE SE NE Section 9-17-8. Culbertson & Williams spudded No. 1 A. E. Roberson, SE NE NE Section 10-16-10.

Lima Oil & Gas Co. deepened No. 1 Benjamin, NW SW SW Section 30-15-8, in the Depew district, and completed it in the Simpson series at 3,742-70 feet. It is a 10-bbl. well. Wilcox sand at 3,778-83 feet was dry.

Tulsa and Okmulgee Counties

C. W. Mechling had machine in for No. 1 McIntosh, SW NE NW Section 13-17-14, Tulsa County.

D. M. Logan completed No. 1 Webb, NW SW NW Section 32-15-13, Okmulgee County. It was deepened from 2,042 feet to Dutcher series at 2,069-85 feet and shot. It made a 30-bbl. initial production.

Armstrong & McCloud spudded No. 6 Wright, C SW Section 26-15-14, Okmulgee County.

Mack Drilling Co.'s No. 1 Simmons, SE NE NW Section 3-15-15, was a hole full of water in Dutcher sand at 1,158-70 feet and was abandoned.

Eagle Picher Oil Co.'s No. 2-A Hope, NE NW SE Section 26-12-12, is a 12-bbl. completion in Dutcher sand at

Wildcat Operations in Oklahoma

Week Ending October 13

NORTHERN OKLAHOMA

ALFALFA COUNTY

Acre et al's No. 1 Acre, C SW NE Sec. 14-24-11w.
T.D. 6,460 ft.; lost tools and S.D.

BECKHAM COUNTY

Fred Coogan et al's No. 1 Shelton, SW cor. Sec. 33-10-25w.
Rig up; moving in tools.

Price and Watchorn O. & G. Co.'s No. 1 Hoard, NE SW Sec. 17-8-24w.
Drlg. 2,350 ft.

CADDO COUNTY

H. W. Lee et al's No. 1 Stacey Ferrell, SW NE NE Sec. 3-6-13w; (2,000-ft. test).
Drlg. 620 ft.

Denver Prod. & Ref. Co.'s No. 1 Noe, NW SW SW Sec. 34-10-10w.
T.D. 11,230 ft.; fishing for drill pipe.

CLEVELAND COUNTY

Anderson & Kerr et al's No. 1 Wilson, NW SE Sec. 27-10-1e.
Set csg. 6,025 ft.; T.D. 6,199 ft.

Mid-Continent Pet. Corp. et al's No. 1 Collett, C E½ NE SW Sec. 35-10-1w.
Drlg. 5,550 ft.

COAL COUNTY

Moore & Deaner's No. 1 Edward, NW NE SE Sec. 27-2-8.
Viola 6,720 ft.; drlg. 6,855 ft.

J. D. Petty Oil Co.'s No. 1 McMillan, SW NW NE Sec. 16-1s-8.
Drlg. 665 ft.

GARFIELD COUNTY

Ross Cummings et al's No. 1 Gage, SE NW Sec. 27-22-3w.
Spudded and S.D.

GARVIN COUNTY

William H. Atkinson et al's No. 1 Pharoah, NW cor. Sec. 15-3-2w.
Drlg. 4,175 ft.

GRANT COUNTY

Helmerich & Payne's No. 1 Crouse, C NE SW Sec. 29-25-4w.
Fishing for drill pipe 4,256 ft.

Sultan Oil Corp.'s No. 1 Patton, SW SE Sec. 19-29-3w.
Drlg. 4,501 ft., in lime.

HARPER COUNTY

Sinclair Prairie Oil Co.'s No. 1 Neff, NW SE Sec. 21-26-24w.
T.D. 5,470 ft.; testing csg. for wtr. shutoff.

HUGHES COUNTY

Turner et al's No. 1 Williams, SW cor. Sec. 35-7-10.
Rig.

KINGFISHER COUNTY

Jadeka Dev. Co.'s No. 1 Frakes, C SW NE SW Sec. 16-15-6w.
T.D. 7,612 ft.; drill pipe stuck.

LEFLORE COUNTY

East Okla. O. & G. Co.'s No. 1 Metcalf, SW cor. Sec. 3-4-26.
T.D. 2,040 ft.; hole caved; S.D.

Murdock et al's No. 1 fee, SW NE SW Sec. 15-5-25e.
T.D. 2,425 ft.; S.D.

LINCOLN COUNTY

Mid-Continental Oil Co.'s No. 1 Bolby, C SE SW Sec. 27-12-2.
Drlg. 4,990 ft.

R. L. Kemp and Comail Oil Co.'s No. 1 Dooley, NE SW Sec. 26-17-4.
Rig.

Derrickson and Reserve Pet. Co.'s No. 1 Law, SE SW NE Sec. 26-14-3.
Rig on ground.

M. Murray and Ralph Day's No. 1 Rittenhouse, NW NW NE Sec. 26-14-4.
Set 15-in. pipe at 40 ft.

Sinclair Prairie Oil Co.'s No. 1 Hoyt, NW¼ SW NE Sec. 5-14-3.
Pits dug.

LOGAN COUNTY

W. N. Anthony's No. 1 Fruin, SE SW Sec. 4-16-1.
Wilcox 5,265-85 ft.; P.B. to 5,151 ft.; will shoot Misener sand.

Gypsy Oil Co. and Sinclair Prairie O. & G. Co.'s No. 1 Manning, C NW NW Sec. 3-17-4w.
Wilcox sand 6,216-67 ft. and 6,309-66 ft.; T.D.

OKLAHOMA COUNTY

Springrose Drlg. Co.'s No. 1 Edwards, C SE Sec. 19-11-1.
T.D. 6,540 ft.; 400 ft. drill pipe in hole; S.D.

OSAGE COUNTY

Peters Pet. Co. and Norbia Oil Co.'s No. 1, SW cor. Sec. 15-25-5.
Drlg. 2,656 ft.

Norbia Oil Co. et al's No. 1, SE NW Sec. 19-25-7.
T.D. 2,176 ft.; drlg. up csg.

PITTSBURG COUNTY

Exchange Drlg. Co. et al's No. 1 Chuna, SE NW Sec. 29-4-14.
T.D. 350 ft.; waiting for csg.

P. H. Gray et al's No. 1 Lee, NW SE Sec. 12-5-13.
Drlg. 160 ft.

W. E. Halley's No. 1 Drew, NW SW Sec. 21-3-14.
S.D. 190 ft.

PONTOTOC COUNTY

Charles E. Carter et al's No. 1 Wood, NW SW SE Sec. 5-4-8.
Spudded and S.D.

S. D. Benton et al's No. 1 Gray, NW SE Sec. 9-4-3.
Cellar and pits.

Benedum & Trees' No. 1 James, SE NW SW Sec. 10-5-3.
Viola 3,808 ft.; drlg. 4,055 ft.

E. M. Blanchard's No. 1 Crabtree, NE SE NE Sec. 27-3-6.
S.D. 2,920 ft.

Boyle et al's No. 1 Newbern, SW NE Sec. 21-5-4.
P.B. to 2,080 ft.; recementing.

Jarrett Pet. Co.'s No. 1 Johnson, SE NW Sec. 28-4-4.
Cored 1,924-27 ft.; sulphur wtr.

Dandridge et al's No. 1 Stafford, NW cor. Sec. 5-1-6e.
T.D. 630 ft.; S.D.

Gillette & Kroeger's No. 1 Robbins, NE SE Sec. 31-1-4.
Drlg. 735 ft.

Gillette & Kroeger's No. 1 Duver, NW SE Sec. 36-1n-6e.
Drlg. 675 ft. (corrected).

Riddle et al's No. 1 Barnes, SE NW SE Sec. 21-5-4.
T.D. 2,923 ft.; lost pipe; abd.

J. D. Sledge and Jack Lynch's No. 1-A (twin) Thompson, SW NE SW Sec. 1-1s-7e.
T.D. 2,756 ft.; drill pipe stuck; pumped 200 bbls. into hole and S.D.

Southern Oil Corp.'s No. 1 Ladd, C NW NW Sec. 27-3-7.
T.D. 515 ft.; running 8-in. csg.

(Continued on Page 71)

WILLIAMSPORT

First choice of most first class drillers

This copy is written by an oil man—

"I was going over our leases and inspecting the equipment when I met a driller on an adjoining lease having a helova lot of trouble with his line (bought at a nearby supply house) and I suggested that he send over to another distributor and get a Williamsport line. He did so.

"Well, he has had a comparative demonstration of Williamsport quality."

Most good drillers feel that it's a waste of valuable time to drill without using Williamsport lines.

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CONSTANT

research in field and laboratory, the use of superior crude oils, and the most modern refining equipment are the three stones in the foundation upon which Humble quality has been built.

HUMBLE

OIL AND REFINING COMPANY

HOUSTON, TEXAS

Producers, Transporters, Refiners and Marketers of Petroleum and Its Products.

2,371-85 feet, which had been acidized.

Jake Reitz was rigging up No. 1-A Derrisaw, C SW SE Section 30-12-12.

Okfuskee County

Johnston & Johnston made a location for No. 1 Gahagan, NW NE NW Section 11-11-8.

Steckoll & Durkee's No. 3 Johnson, CWL NE SE Section 2-10-11, is a 40-bbl. completion, producing from sand at 1,654-89 feet.

Sinclair Prairie Oil Co.'s No. 2 Davis, SE NW NW Section 9-13-10, Okfuskee County, had Wilcox sand at 3,393-3,429 feet, and a hole full of water and the well was abandoned.

Oklahoma County

Larkin & Warr's No. 1 Katy, CEL NW SE SE Section 34-12-3w, had Wilcox sand at 6,258-6,302 feet, and tested 26,000,000 feet of gas in 24 hours. Cable tools were being moved in to complete the well, which is in the north end of the Oklahoma City Field.

Watchorn Oil & Gas Co.'s No. 2 Traders Compress, NE NW SE SE Section 34-12-3w, flowed 2,035 bbls. in 12 hours from Wilcox sand at 6,260-6,409 feet. It was shut in.

American Oil & Refining Co. was drilling at 2,024 feet in No. 2 Washington Park, 665 feet from north line and 205 feet from west line of SW Section 35-12-3w.

Marydun Oil Co.'s No. 1 Stamper, SW NE 8% Section 22-11-3w, is a location. Phillips Petroleum Co.'s No. 3 Holstein, 984 feet from south line and 1,151 feet from west line of SE Section 22-11-3w, produced 554 bbls. of oil in a 14-hour gas lift test and was completed. Wilcox sand lies at 6,460-75 feet. This well made 1,865 bbls. in 24 hours in mid-September and was then shut in.

Greater Seminole Field

Atlantic Oil Producing Co. and Gypsy Oil Co.'s No. 3 Delaware, SE cor. Section 12-9-4, was acidized at 4,195-4,216 feet and flowed 755 bbls. of oil in 24 hours. It was not a completion.

Atlantic Oil Producing Co. and Sinclair Prairie Oil Co. made a location for No. 5 Foreman C, 660 feet from north line and 330 feet from west line of NE Section 18-9-5, Seminole County.

Mid-Continent Petroleum Corp. completed No. 1-A Marcy, SW SW NW Section 13-9-6, which was reported last week as having made 1,245 bbls. the first 24 hours from Hunton lime at 4,027-53 feet.

The Texas Co. was rigging up No. 6 Mayhue, SE SE NE Section 14-9-6.

Morgan Petroleum Co.'s No. 1 Robertson, NE NE SE Section 30-8-4, St. Louis Field, Pottawatomie County, was acidized at 4,430-50 feet and swabbed 595 bbls. in 24 hours, but was not completed.

The Texas Co.'s No. 1 Reed, NW NW SE Section 27-8-8, Seminole County, flowed 360 bbls. in 12 hours from Wilcox sand at 4,182-96 feet.

Hunton Oil Co. was rigging up rotary for No. 1 Garrison, NW SW SE Section 12-7-3, Pottawatomie County.

Keyokle Oil Co. completed No. 2 McGee, NE SW SE Section 4-7-4. Hunton lime was topped at 3,794 feet; Sylvan at 4,055-58 feet. It was acidized and the well swabbed 282 bbls. of oil the first day and 296 bbls. the second.

Clark and others were rigging up rotary for No. 1 Jordan, west 40 acres, SE SW SE Section 10-7-4.

Magnolia Petroleum Co.'s No. 3 Tarter, NW NE SW Section 15-7-4, had Wilcox sand at 4,400-06 feet and a hole full of water. The hole was abandoned.

In the Holdenville district, Elliott and Shell Petroleum Corp. made a location for No. 7 Pickens, 330 feet north and 660 feet east of C Section 15-7-8, Hughes County.

Burke-Greis Oil Co. and others completed No. 2 Jackson, 200 feet north and 150 feet east of SW cor. Section 29-7-8. It flowed 665 bbls. of oil in 24 hours from Wapnucka lime at 3,017-75 feet, with first big pay at 3,074 feet.

Champlin Refining Co. abandoned the location for No. 4 See, SW NE SE Section 30-7-8, Seminole County.

Empire Oil & Refining Co.'s No. 2 Myers, 200 feet south and 150 feet west of NE cor. Section 31-7-8, Seminole County, flowed 596 bbls. in 24 hours from Wapanucka lime at 3,060-3,119 feet.

Winona Oil Co. and Jarvis & Holm's No. 2 Myers, NE SW NE Section 31-7-8, had Wapanucka lime at 3,075 feet, set 8-inch at 3,085 feet and cored from 3,118 to 3,134 feet. Cable tools were being rigged up to complete.

Jones and others' No. 2 Lucas, SW NE NW Section 2-6-4, Asher district, Pottawatomie County, was completed in dolomite at 4,233-84 feet. It was acidized and made a 15-bbl. well.

Mudge Oil Co. had machine in to start No. 1-A Fleet, NW SW NE Section 11-6-7, Seminole County.

Latimer County

LeFlore Gas & Electric Co. have machine in for No. 1 Baker, C NW Section 18-6-22, Latimer County.

Grady County

Oklahoma Gas Utilities Co.'s No. 16 Farwell, NW SE SE Section 26-5-8w, Grady County, was flowing about 20 bbls. a day by heads after having been plugged back to 3,150 feet. It had a series of sands from 1,740 feet down to 3,220 feet.

Pontotoc County

Riddle and others wildcat in No. 1

JERGUSON

REFLEX GAGES

are ideal for gasoline, kerosene, steam, oil. No matter what the color of the liquid, they show the level in BLACK.

The *empty* space appears WHITE

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Safe and durable at highest pressures and temperatures. Furnished with or without valves for every type of service. Write us.

Jerguson Gage & Valve Co.
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SOMERVILLE, MASS.

Barnes, SE NW SE Section 21-5-4, northwest of Beebe, Pontotoc County, was abandoned at 2,922 feet with drill pipe in the hole. Simpson was topped at 2,895 feet.

Mayfield and others were rigging up rotary for No. 1 Unnamed farm, C SW SW SW Section 19-5-5.

Crabgraw Oil Co.'s No. 1 McAllister, C NE NE Section 9-4-6, will be deepened from 2,415 feet, and material is on the ground.

Boettcher Drilling Co. will deepen No. 1 Alexander, 660 feet west of C Section 24-4-7, present total depth 1,280 feet.

Magnolia Petroleum Co.'s No. 1 Craddock, SE cor. Section 24-2-6, in the Fitts Pool, had 500 feet of oil and 2,700 feet of water in the hole from Bromide at 4,521-28 feet. The oil is from the Viola lime and the hole will be plugged back to that formation topped at 4,138 feet. It is estimated as a 50-bbl. well.

There are 23 operations active in the Fitts area in Sections 24, 25, 27 and 36-2-6 and Sections 20, 29, 30, 31-2-7, and locations in Sections 28-2-7 and 24-2-6.

Moore & Deaner in their No. 1 Edwards, NW NE SE Section 27-2-8, have had all the formations in that area, and a showing of oil at 6,800 feet. Viola was topped at 6,720 feet and the well was drilling at 6,855 feet.

Dixie Oil Co., Inc., has a rig up for No. 1 Graham, SW SE SW Section 13-1-7.

Southern Counties

In Jefferson County, Farlyn Oil Co. was drilling at 190 feet in No. 24 Seay, 985 feet north and 840 feet west of SE cor. Section 3-7s-5w. Jack Cohen abandoned No. 1 Seay, NE SW SE Section 29-6s-5w, at 1,628 feet. Bridwell Oil Co. has an estimated 15-bbl. well in No. 3 Wahlgemuth, NW SE NW Section 29-6s-5w, from sand at 1,494-1,508 feet, and it was being rigged up for a pumping test. Bridwell Oil Co. has a rig up for No. 4 Wahlgemuth, SW NE NW Section 30-6s-5w.

In Marshall County, L. F. Wham completed a 5-bbl. well at 417-22 feet in No. 1 Walker, NE cor. Section 35-7s-5e.

In Jackson County, Burk Royalty Co. was drilling at 40 feet in No. 1 W. A. Gore, SE NW SE Section 3-1s-20w.

In Stephens County, L. Sykes completed a 35-bbl. well in No. 4 Mulkey, CEL NE Section 16-1s-8w, in sand at 2,099-2,100 feet. It also showed a 1,000,000-foot gas production.

In Carter County, Samedan Oil Co. had rotary tools in for No. 3 Higgins, NE cor. Section 36-1s-3w. Paul Turner and others' No. 1-A Brown, NW SW SW Section 19-1s-2w, was showing for a 5,000,000-foot gas well with a spray of oil from sand at 1,127-84 feet. Ben Barnett and others' No. 1 Lynn, SW NE NE Section 1-1s-2w, was shut down. It looks like a 30-bbl. well at a total depth of 2,001 feet. It had been drilled to 2,454 feet and plugged back.

DRILLING COST FINDINGS

WASHINGTON, D. C., Oct. 15.—Administrator Ickes has approved the recommendation of the production subcommittee on findings of the Texas drilling practices committee setting forth the fair economic cost of drilling operations in the following fields in Texas: East Texas, rotary drilling, $1.31 per foot; West Texas, combination rotary and cable tool drilling, $3.84 per foot; West Texas, rotary drilling, $3.61 per foot; Panhandle, Bowers-LeFors-Finley area, combination rotary and cable tool, $3.54 per foot, cable tool drilling, $2.26 per foot.

DEATH OF H. H. THOEMING

H. H. (Gyp) Thoeming, oldest scout in point of service in the employ of the Gypsy Oil Co., died at his home in Tulsa on Wednesday, October 10. He had been in ill health several months. Deceased began his duties with the company in May, 1918. Mrs. Thoeming and one child survive.

C. W. BROWN DIES

Chester W. Brown, pioneer California oil man and a director of the Union Oil Co., died at his Balboa Beach home, last week.

Wildcat Operations in Oklahoma

(Continued from Page 69)

POTTAWATOMIE COUNTY

W. D. Grisso et al's No. 1-A Kenyon, C NE SE Sec. 3-8-4.
Hunton 4,050 ft.; 6-in. csg. at 4,048 ft.

SEMINOLE COUNTY

Harris and Haun's No. 1 Harjo, NE SE NW Sec. 11-6-6 (O.W.P.B.).
Old T.D. 2,935 ft.; ripped csg. 2,100-12 ft.; flowed 101 bbls. in 24 hrs.; sand 2,155 ft.; T.D. 2,175 ft.; cementing off water.

Moran et al's No. 1 Brinlee, SW NE Sec. 27-6-6.
Set 5-in. csg. at 2,650 ft.; T.D. 2,673 ft.

Mudge Oil Co.'s No. 1 Whitney, SE NW Sec. 9-6-7.
Sand 1,935-36 ft.; S.O.

Verser & Clay et al's No. 1 Thomas, NE SE NW Sec. 1-6-6.
Sand 2,074-78 ft.; S.O.

TEXAS COUNTY

Ben F. Ash et al's No. 1 Guymon Townsite, C NE SE Sec. 36-3n-15e (Cimarron Meridian).
Drlg. 1,200 ft.

WASHITA COUNTY

Anadarko Basin Oil Co.'s No. 1 Wolf, NE SW Sec. 33-9-17w.
Rigged up and S.D.

Okla.-Midwestern Oil Co.'s No. 1 Dock, SW cor. Sec. 31-8-18w.
T.D. 2,430 ft.; lost tools in hole; rig rebuilt; S.D.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Brookshire et al's No. 1 Rowland, NW NE NE Sec. 18-3s-10e.
T.D. 2,760 ft.; fishing.

J. D. Boukan's No. 1 Howard, NW SW NW Sec. 28-2s-10e.
S.D. 1,135 ft.; machine moved out.

L. A. Pitts' No. 1 Blankenship, NE cor. NW Sec. 19-2s-10e.
T.D. 651 ft.; S.D.

T. C. Ramler et al's No. 1 Roberts, SW SE SW Sec. 6-2s-12e.
Drlg. 1,004 ft.

CARTER COUNTY

Daphfine Oil Co.'s No. 1 Hooks, SE NW NW SE Sec. 5-1s-2w.
Drlg. 2,456 ft.

CHOCTAW COUNTY

J. V. Scrivener et al's No. 1 Swink, C NE SE Sec. 29-4s-20e.
S.D. 810 ft.

COMANCHE COUNTY

F. F. Stevens' No. 1 Green, SE SW Sec. 2-1-12w.
T.D. 1,210 ft.; lost bit; S.D.

Holden & Taylor's No. 3 Crutchon, C NE Sec. 11-1n-12w.
T.D. 863 ft.; fishing for tools.

GARVIN COUNTY

National Prod. Co.'s No. 1 Littrell, NE cor. Sec. 31-2n-3w.
S.D. 351 ft.

JACKSON COUNTY

Burk Royalty Co.'s No. 1 Gore, SE NW SE Sec. 3-1s-20w.
Drlg. 40 ft.

Gypsy Oil Co.'s No. 1 Stokes, SE NW SW Sec. 11-1-20w.
Lime 1,709-11 ft.; T.D. 1,723 ft.; S.D.

Gypsy Oil Co.'s No. 1-A (Twin) Kelly, NE cor. Sec. 10-1n-19w.
Shot with 10 qts. at 1,150-70 ft.; no showing; S.D.

Ben Russell et al's No. 1 Unknown, NW SE Sec. 30-1-22w.
S.D. 3,974 ft.

JEFFERSON COUNTY

Geo. Pace et al's No. 1 Jack, NE NW NW Sec. 19-4s-4w.
Drlg. 2,963 ft.

JOHNSTON COUNTY

Gled Oil Co. et al's No. 1 Ferguson, SW SE NE Sec. 26-2s-8.
S.D. 70 ft.

MARSHALL COUNTY

Paul Robb's No. 1 Vittetoe, C NE SE Sec. 11-5s-4e.
T.D. 4,927 ft.; C.O. and washing out.

MURRAY COUNTY

T. E. Revell et al's No. 1 Wolfe, NE cor. Sec. 15-1-2.
Sand 2,658-70 ft.; show of oil; T.D. 2,710 ft.; S.D.

C. P. Williams et al's No. 1 Singleterry, SE SW NW Sec. 25-2s-3e.
Drlg. 225 ft.

STEPHENS COUNTY

Wm. Angle's No. 1 Johnson, NE cor. SE Sec. 17-1n-8w.
S.D. for wtr., 1,176 ft.

Carter Oil Co.'s No. 1 McCasland, C NW NW SW Sec. 22-1s-4w.
Drlg. 4,300 ft.

Dixie Oil Co., Inc.'s No. 1 Graham, SW SE SW Sec. 13-1s-7w.
Rig.

Finley et al's No. 1 Woolsey, NW SE Sec. 10-3s-4w.
Sand 325-37 ft.; show gas; S.D. 440 ft.

Heenan & Coe's No. 1 Hefner, SE NE SW Sec. 13-3s-7w.
Rigging up.

J. W. Madison's No. 1 Tussey, SW SE NW Sec. 24-1s-4w.
Rig down, drill pipe in hole; S.D. 5,236 ft.

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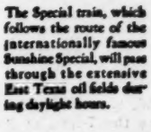

The Special train, which follows the route of the internationally famous Sunshine Special, will pass through the extensive East Texas oil fields during daylight hours.

Will leave St. Louis at 6:30 pm, Memphis at 10:45 pm, November 10 and arrive in Dallas at 12:15 pm the next day. In addition to the latest type Pullman equipment the Special will carry an air-conditioned diner and air-conditioned deluxe lounge car, and will follow the route of the famous Sunshine Special. Three trains daily leave St. Louis for Dallas at 1:40 pm, 6:30 pm and 2:00 am, and Memphis at 7:05 pm, 10:45 pm and 8:00 am.

P. J. NEFF
Asst. Chief Traffic Officer
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St. Louis, Mo.

MISSOURI PACIFIC LINES

"A SERVICE INSTITUTION" 530

Cooper and Jal Pools May Prove Continuous; Large Acreage Blocked in Yuma County

By TOLBERT R. INGRAM
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Oct. 15.—The allowable outlet for all the Lea County pools in New Mexico was reduced for October. The Texas Co.'s No. 1 Ogg, midway between the Cooper and Jal Pools, is showing for a producer and gauged 565 bbls. in 24 hours before setting pipe. Humble Oil & Refining Co.'s No. 1 Thomas, near producing wells on the east side of the Cooper Pool, is showing water. Same company's No. 1 Coats, 2 miles north of production, is blowing wild with gas estimated at 50,000,000 feet a day. Ohio Oil Co.'s No. 2 State-McDonald, an important test between the Eunice and Cooper Pools, is showing water and will plug back. Shell Petroleum Corp. is completing two wells in the Hobbs Pool. Continental Oil Co. has leased 60,000 acres in the Evans ranch in Valencia and Sandoval Counties. Two new locations were reported in Valencia County.

Indian Territory Illuminating Oil Co. has blocked up 30,000 acres in Yuma County, eastern Colorado, after a seismograph survey. There were no completions or new locations in Colorado. A wildcat in the Hartsell district in Park County has a good show of oil and gas.

Paul Stock's No. 2 Government, in the Oregon Basin Field, in Wyoming, started off at the rate of 3,000 bbls. a day and proved up some doubtful territory. The Sinclair-Wyoming Oil Co. has eight operations in Salt Creek and five in Lost Soldier under way. Washakie County reported 2,000,000 feet of gas and 15 bbls. of high gravity crude a day in a well in the Hidden Dome area. One new location was released in Sweetwater County.

Four completions, three new locations and six operations suspended for the winter were reported in the Cut Bank Field in Montana.

NEW MEXICO

Lea County

Allowable outlet for Lea County Pools for October as established by the New Mexico allocation committee, based on the state's allowable, is as follows:

Hobbs	82,986
Eunice	3,904
Cooper-Lynn	1,607
Jal	3,238
Lea	1,546
North Lea	19

Hobbs potential as of October 1 was 2,077,975 bbls. daily from 197 units of 40 acres each. The top allowance per well per day for the other pools is 167 bbls., which compares with 169 bbls. for the last of September. Hobbs pipe line runs in September were 1,015,584 bbls., bringing the total since proration went into effect up to 49,508,206 bbls. September runs for other pools were as follows:

Eunice	101,491
Cooper-Lynn	46,839
Jal	93,306
Lea	48,904
North Lea	998

Cooper Area

The Texas Co.'s No. 1 Ogg, C SW NE Section 35-24-36, 1½ miles to the south of the principal development in the Cooper Pool and approximately the same distance to the north of the nearest producer in the Jal Pool, is being completed as an oil well and will go a long way toward confirming the belief that the two pools are continuous. It is bottomed at 3,523 feet in lime at which depth it gauged 565 bbls. in 24 hours with 1,470,000 feet of gas. The 7-inch is being cemented at 3,398 feet and it will be an early completion.

Humble Oil & Refining Co.'s No. 1 Thomas, C SW SE Section 23-24-36, at a location where production was expected, is a disappointment at 3,602 feet, at which depth it is showing water. The location is on a direct north-south line between the Texas Co.'s No. 1 Ogg and Humble's No. 1 Cooper, and two locations east of Phillips Petroleum Co.'s No. 4 Woolworth. It was given a drill stem test at 3,560-92 feet and showed 20 feet of drill fluid. At 3,592-3,602 feet it showed 1,800 feet of sulphur water in one hour through a three-fourths-inch opening. There was no oil nor gas and no increase in the water. It probably will plug back and flow the upper water in an effort to exhaust the supply or drill deeper.

Humble Oil & Refining Co.'s No. 1 Coats, C NW NE Section 10-24-36, 2 miles to the north of the nearest producer, looks favorable. At 3,355 feet it is blowing wild, making between 50,000,000 and 60,000,000 feet of gas a day. It is believed that the gas is coming through a hole in the 9⅝-inch casing which was set below a gas blowout at 3,013 feet. The Humble's No. 2 Cooper, C NE NE Section 23-24-36, has completed derrick.

Continental Oil Co.'s No. 1 Gates, C NE NW Section 23-24-36, is rigging up rotary, and Gypsy Oil Co.'s No. 1 Cooper, C SW NE Section 23-24-36, is drilling at 2,420 feet in salt and anhydrite. The Phillips Petroleum Co.'s No. 5 Woolworth, C NE NE Section 27-24-36, is drilling at 3,370 feet in brown lime, and its No. 7 Woolworth, C SE SW Section 23-24-36, is drilling at 3,430 feet in brown lime. Same company's No. 8 Woolworth, C SW SE Section 22-24-36, is bottomed at 3,145 feet in brown lime and preparing to run 1,400 feet of the 9⅝-inch. Stanolind Oil & Gas Co.'s No. 2-A Meyers, C NE NE Section 22-24-36, is rigging up rotary.

Eunice Area

Ohio Oil Co.'s No. 2 State-McDonald, C NW SW Section 14-22-36, 5 miles to the southeast of the main development in the Eunice Pool and 1 mile east of a small producer, which is expected to yield important information as to the structural conditions between the Eunice and Cooper Pools, is bottomed at 4,200 feet and in a drill stem test at 4,200-60 feet, showed 990 feet of mud and sulphur water. It had a gas blowout, estimated at 50,000,000 feet a day at 3,440 feet and showed for 6,000,000 feet of sweet gas at 3,546-3,608 feet. It obtained a good saturated core at 4,050-60 feet. It is running a Schlumberger electrical tester to determine the various formations encountered.

Shell Petroleum Corp. and Devonian Oil Co.'s No. 1 State, C SW NE Section 20-21-36, is waiting at 3,980 feet after cementing the 7-inch at 3,850 feet with 350 sacks. A test at 3,955-80 feet yielded 20½ joints of drilling fluid with some oil and gas.

One new location was reported in the Texas Co.'s No. 2 Rector, C SE SE Section 30-21-36, one location to the south of its No. 1 Rector.

Skelly Oil Co.'s No. 1 Coleman, C NW NW Section 17-21-36, is waiting after cementing the 9⅝-inch on bottom at 1,623 with 400 sacks. Continental Oil Co.'s No. 8-A-2 Meyers, C SE SW Section 8-21-36, is drilling at 1,815 feet in salt and anhydrite, and its No. 17-A-4 Meyers, C NE SW Section 17-21-36, is waiting at 3,850 feet after cementing the 7-inch at 3,849 feet with 400 sacks. Tide Water Oil Co.'s No. 3 Coleman, C NE NE Section 17-21-36, is waiting at 3,800 feet, total depth, after cementing the 7-inch at 3,789 feet with 300 sacks. Gypsy Oil Co.'s No. 2 Bell-Ramsey, C SW NW Section 9-21-36, cemented the 10-inch at 336 feet with 225 sacks. Humble Oil & Refining Co.'s No. 1-B State, C SW NW Section 29-21-36, is drilling at 558 feet in red beds. Atlantic Oil Co.'s No. 1-F State, C SW SW Section 29-21-36, is building derrick.

Hobbs Pool

Shell Petroleum Corp. is completing two wells in the Hobbs Pool. Its No. 1-D State, SE cor. NW Section 24-18-37, an outside well on the northwestern flank which proves up one location, is bottomed at 4,260 feet in lime. It was treated with 1,000 gallons of acid at 4,104-4,202 feet and gauged 137 bbls. an hour. It was again treated with 1,000 gallons at 4,260 feet and is swabbing in. Same company's No. 1 Sanger, SW cor. Section 27-18-38, an outside well on the southeastern side of the pool, a north offset to the Stanolind Oil & Gas Co.'s No. 8 Turner, is bottomed at 4,160 feet in lime and tested 95 bbls. in two hours of which 23 per cent was drilling fluid. The pay was at 4,118-52 feet. The top of the brown lime was at 4,094 feet. It will drill deeper and acidize. Shell's No. 4 Grimes, SE cor. SW Section 28-18-38, which was drilled in several weeks ago, has been completed at 4,230 feet after being acidized three times. Initial production through the 3-inch tubing was 3,339 bbls. with 8,000,000 feet of gas. It was given a potential curve of 4,400 bbls. Packer was set at 4,042 feet.

Gypsy Oil Co.'s No. 4 East Grimes, C NE NE Section 33-18-38, is drilling plug after cementing the 13⅜-inch at 285 feet with 200 sacks. Oil Well Drilling Co. and others' No. 1 Grimes, SW NE SE Section 20-18-38, is drilling at 250 feet in red beds.

Jal Area

E. B. Guess' No. 1-B Justis, SW NW NW Section 20-25-37, spudded 1 foot and shut down. The Texas Co.'s No. 2-B Shepard, NW NE SE Section 6-26-37, set the 15½-inch at 88 feet with 92 sacks and is drilling at 315 feet in red beds. Empire Gas & Fuel Co.'s No. 2-B Lindley, SE cor. SW Section 13-25-36, is running the 7-inch at 3,278 feet, total depth. Repollo Oil Co.'s No. 1 Hanagan, SE cor. SW Section 12-25-36, is bottomed at 3,285 feet in lime and running shots for a geophone record of the hole, and its No. 1 Gloyd, SW cor. SE Section 12-25-36, cemented the 10-inch on bottom at 1,400 feet with 750 sacks and is waiting. Continental Oil Co.'s No. 12-A-2 Wells, C NW NE Section 12-25-36, is running the 15½-inch to bottom at 150 feet.

Lea Area

The Texas Co.'s No. 1 Elliott, C NE NE Section 22-20-34, is drilling water wells, and its No. 1 Swearingen, C NE SW Section 8-20-34, is rigging up cable tools. Its No. 4-A Lynch, C SE NE Section 34-20-34, is bottomed at 790 feet in red beds and preparing to run the 10-inch.

Eddy County

Etz, Hammond & Keyes' No. 1 State, C SE SE Section 16-17-28, Artesia area, is running tubing to test at 1,964 feet, total depth. Tignor, Etz & Keyes' No. 1-A Keyes, C SE SW Section 10-17-28, is bottomed at 1,973 feet with a hole full of oil from 1,963-70 feet. Skelly Oil Co.'s No. 1 Lea, C NW NW Section 23-17-31, Maljamar area, is testing water shutoff with packer at 3,810 feet. Total depth is 3,874 feet. It is estimated good for 20 bbls. a day.

Sandoval County

Continental Oil Co. has leased the Evans ranch comprising 60,000 acres in Townships 12, 13 and 14n, Ranges 3 and 4w, in Sandoval and Valencia Counties. No drilling plans have been announced, but it is presumed the deal was made for the oil possibilities in the Pennsylvania formation at around 4,500 feet.

Valencia County

Ringle Development Co. is rigging up two tests on the Tome grant. No. 1 is the NE Section 20-6n-3e, will start in a 20-inch hole for a Pennsylvanian test, and No. 2, SW Section 35-6n-3e, will start in a 12½-inch hole to go to the Dakota at 2,000 feet. No. 2 will be the first one drilled.

Santa Fe County

Holmberg interests' No. 1 Cantwell, NW cor. Section 5-10n-9e, near Stanley, is drilling at 650 feet in red beds. Elmer Fisher's No. 1 Hill, Section 6-10-7e, is drilling at 2,140 feet in black lime. Kelsey Clients Dev. Estates' No. 2 State, C NW Section 22-10n-10e, Crow Butte district, is straightreaming to bottom at 1,105 feet.

Roosevelt County

Claudell Development Co.'s No. 1 Wilmes, C SW SE Section 21-2s-30, Pomeroy district, cemented the 15½-inch at 400 feet.

COLORADO

Yuma County

Indian Territory Illuminating Oil Co. has leased approximately 15,000 acres of deeded land and same quantity of state land in Township 2s, Range 43w, near the eastern Colorado boundary in Yuma County south of the Blackwolf-Arickaree structure where several small gas wells were drilled a number of years ago. Blocking began after the completion of a seismograph survey. Bonuses of $1 an acre and rentals were reported paid in some instances.

Adams County

Riddle Petroleum Co.'s No. 1 Baxter, C SW Section 2-3s-66, Derby district, has derrick up and waiting for rotary rig. Sidney H. Keoughan, who has the contract, is moving in a small rotary to drill water wells.

El Paso County

Colorado Springs Oil & Natural Gas Co.'s No. 2 Carson, NW NE NE Section 10-16-66, Fountain district, is shut down at 2,504 feet and probably will be abandoned. The Muddy at 2,256-63 feet had water. The Dakota topped at 2,285 feet, had very cold water. The top of the Lakota was at 2,500 feet.

Huerfano County

S. W. Pressey's No. 1 Ojo, SW NE Section 10-29-69, Oak View district, is drilling at 3,100 feet and has an increase in gas in shale.

Moffat County

The Texas Co.'s No. 1 Van Schaick, SW cor. Section 19-12-100, Hiawatha Dome, is bottomed at 2,100 feet and cleaning out at 2,030 feet after cementing the 8¼-inch.

Stanolind Oil & Gas Co.'s No. 14-8D Parkinson, NE SW Section 22-4n-92, Iles Dome, is spudding at 453 feet. Its No. 22-8D Shaw, NW SE NW Section 27-

4s-92, is a location and will not be drilled until after completion of No. 14-8D.

Routt County

The Texas Co.'s No. 8 Quaintance-Hocking, NE SW NE Section 18-6n-86, Tow Creek, is drilling at 2,245 feet. The 10¾-inch was set at 1,534 feet.

Jackson County

Continental Oil Co.'s No. 3 Hoye, NW cor. NE Section 34-9n-78, South McCallum, is bottomed at 2,297 feet and reaming an 18-inch hole at 2,140 feet.

Boulder County

Leslie R. Steele's No. 1 Cole, NW cor. NE Section 33-1n-70, Parallel Dome, is drilling at 2,565 feet in shale.

Park County

South Park Oil Co.'s No. 1 State, SE cor. SW Section 16-11s-75, is drilling at 320 feet in black shale and making about 2 bailers of oil an hour and 500,000 feet of gas a day.

Lincoln County

Consolidating Smelting & Metals Co.'s No. 1 Hancock, NW cor. SE Section 7-17-52, Haswell district, is moving in rotary equipment. Derrick is up.

Archuleta County

Navajo Oil Co.'s No. 1 Crowley, SW cor. NE Section 11-32-1e, Chromo district, is shut down at 390 feet with hole full of water from the Dakota and probably will be abandoned.

WYOMING

Albany County

California Co.'s No. 1 Holst, NE SE SE Section 13-17-77, Quealy Dome, is drilling at 1,989 feet.

Big Horn County

Ohio Oil Co.'s No. 2 Byron Union, C SE NE Section 22-56-97, Byron Dome, topped at Embar at 5,433 feet, showing saturation, and is coring ahead. W. O. Taylor and others' No. 1 Hoskins, SE SE Section 25-56-97, is fishing for drill pipe at 5,270 feet. It is about on top of the Embar. J. W. Bales' No. 1 Parker, C SW SW Section 23-49-89, Ziesman Dome, is drilling at 165 feet.

Carbon County

The Sinclair-Wyoming Oil Co.'s No. 4 Wertz, SW cor. SE Section 7-26-89, Wertz Dome, is running the 4½-inch to 3,458 feet. Total depth is 3,528 feet. Ohio Oil Co.'s No. 1 Morris, C NW SE Section 6-20-77, Diamond Dome, is shut down temporarily at 2,874 feet. Earl W. Reeder, Inc.'s No. 1 Union Pacific, C SW SW Section 19-20-83, Overland Dome, is drilling at 5,590 feet after cleaning up fishing job, and its No. 1 Whitford, SW SE SE Section 24-20-84, is trucking in rotary equipment from California.

Converse County

R. J. Dilger's No. 1 Government, SE NE SW Section 33-31-72, Poison Lake, set the 8¼-inch at 626 feet and is drilling at 675 feet.

Fremont County

Mid-American Oil Co.'s No. 1 Government, NE SW Section 4-28-92, Sheep Creek, is drilling at 3,200 feet. The Embar was topped at 2,530 feet. Nelson & Pouppiert's No. 5, SW SE NW Section 27-3n-1w, Pilot Butte, is drilling at 760 feet.

Hot Springs County

California Exploration Co.'s No. 1 Government, NE SE NE Section 12-44-97, Waugh Dome, is drilling at 2,755 feet.

Lincoln County

Senrab Oil Co.'s No. 3 Government, SE NW Section 10-26-113, La Barge district, is drilling at 511 feet.

Natrona County

Sinclair-Wyoming Oil Co. is cleaning out and deepening eight old wells in the Salt Creek Field as follows:

No. 1-C, NE NW NW Section 12-39-79, cleaning out to bottom at 2,224 feet. No. 1-N, SW cor. SE Section 18-40-78, shut down at 2,723 feet for crew. No. 1-O, NW SW NW Section 18-40-78, bailing at 2,525 feet. No. 4-J, NE SE SE Section 30-40-78, total depth, 2,334 feet, fishing for tubing at 2,309 feet. No. 5-F, NE SE NW Section 19-40-78, total depth 2,500 feet, drilling out bridge at 2,484 feet. No. 7-F, SW SE NW Section 19-40-78, shut down at 2,335 feet. No. 12-P, SW cor. Section 20-39-79, total depth, 2,843 feet, bailing at 2,840 feet. No. 8-J, NE cor. SE Section 30-40-78, total depth 2,562 feet, sidetracking iron at 2,513 feet.

Niobrara County

Interstate Oil & Refining Co.'s No. 1 Morrell, NW NE SE Section 2-39-61, West Mule Creek, is preparing to test at 2,840 feet, 2 feet in sand showing 600 feet of oil. Straightreaming to land the 6¼-inch on top of the sand is in progress.

Park County

Paul Stock's No. 2 Government, SW SE NE Section 29-51-100, Oregon Basin Field, proved to the largest well completed in that field, in the Embar-Tensleep at 3,500-89 feet. It flowed 125 bbls. an hour, or at the rate of 3,000 bbls. daily. It is approximately 400 feet down structure on the northeast flank of the south dome in territory that was considered doubtful. Dry Creek Oil Co.'s No. 1 Government, NE SW Section 9-50-100, South Oregon Basin, which gauged 14,000,000 feet of gas in the first Frontier at 900 feet, killed the gas, pulled the 8¼-inch, set the 6⅝-inch at 1,093 feet, on top of the second sand, and is waiting.

Val M. Kirk's No. 2 Kirk, SE SW SW Section 24-58-98, Frannie Dome, is drilling at 2,800 feet. Stanolind Oil & Gas Co.'s No. 6 Rosenberg, NW cor. Section 25-58-98, which swabbed at the rate of 300 bbls. daily at 2,747 feet, is shut down waiting for pumping equipment.

Sublet County

Calmonica Petroleum Co.'s No. 17-3, NW cor. NE Section 17-27-113, La Barge district, topped the pay at 2,093 feet, set the 8¼-inch at that depth and is drilling out plug.

Sweetwater County

Wyo-Cal Petroleum Corp. has released location for its No. 1 Government, SE cor. Section 20-16-104, South Baxter Basin. It probably will not be drilled until spring.

Sinclair-Wyoming Oil Co. is drilling one new well and deepening four old wells in the Lost Soldier Field as follows:

No. 28-A, NW SE NE Section 10-26-90, fishing for bailer at 613 feet. No. 46-A, SE cor. Section 3-26-90, rigging up to bail at 1,782 feet. No. 51-A, C SW SW Section 11-26-90, rigging up to deepen from 390 feet. No. 60, C SE SE Section 3-26-90, drilling at 2,061 feet in shale and making 4½ bailers of water and oil in six hours. No. 76, SW cor. NW Section 11-26-90, total depth 325 feet, trying to get circulation.

Uinta County

General Petroleum Corp. of Utah's No. 1 Hayes-U. P., SW NW SW Section 29-14-118, is drilling at 950 feet in shale.

Washakie County

Wyoming Oil & Gas Co.'s No. 1 State, SE cor. Section 36-48-91, Hidden Dome, a little to the northwest of development, is drilling at 1,648 feet and making 2,000,000 feet of gas a day and 15 bbls. of 40-degree gravity crude. The gas is coming from 1,604-16 feet. The 5⅛-inch is at 1,600 feet.

Weston County

Conway Oil Corp.'s No. 1 Government, C SE NW Section 7-41-60, Dewey district, is waiting for 12½-inch at 590 feet. It is flowing 700 bbls. of water a day from the Dakota at 335-410 feet and the Lakota at 425-445 feet. Irene Eaton's No. 14, NE SW Section 30-46-63, Osage Field, is spudding at 60 feet. Western States Oil Co.'s No. 10 Bock, CWL SW NE Section 14-46-64, is rigging up.

Announcement is made of the sale of

COOL AS A DRAUGHT
from a mountain spring
Gotkool
WATER CANS
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With the GOTT Water Cooler handy, you will always be assured of a fresh supply of pure drinking water kept delightfully cool — it's health insurance... Order one from your supply store today!
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KEEP PURE DRINKING WATER ALWAYS HANDY

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Rocky Mountain Distributor:
Great Northern Tool & Supply Company

the Smith Engineering Co.'s interest in the Osage Refining Co.'s plant to E. C. Winters, of Kansas City. Both skimming and cracking units are operating on regular schedules.

MONTANA

Glacier County

Four completions and three new locations were reported in the Cut Bank Field. The completions are all in proven territory and are as follows: Consolidated Gas Co.'s No. 2 Ewing, SE SE Section 34-35-6w, swabbed 362 bbls. the first 24 hours from the pay at 2,935-47 feet and 225 bbls. the second period. On the pump it made 177 bbls. the first 24 hours. Total depth is 2,953 feet. The Texas Co.'s No. 1 State M-246, C SE NE Section 36-34-6w, the first well drilled in the section, swabbed 116 bbls. first 12 hours at 2,925 feet, total depth. It is running tubing to pump. The Texas Co.'s No. 1 Hessler, C NE NW Section 20-33-5w, in the south part of the field, swabbed 122 bbls. first 24 hours and made 60 bbls. first 11 hours on the pump from the pay at 2,968-87 feet. Total depth is 2,994 feet.

New locations are: The Texas Co.'s No. 1 Kneale, C SW NW Section 14-35-6w, 10¾-inch cemented at 298 feet; A. B. Cobb's No. 4 Walberger, C SE SE Section 35-35-6w, location; and C. P. Castle's No. 1 State, C SW SW Section 36-35-6w, location.

The fourth completion was W. M. Fulton and George Nadeau's No. 2 Haggerty, C NW NW Section 15-34-6w, which swabbed 100 bbls. first 29 hours from the pay at 3,040-50 feet. Total depth is 3,054 feet.

Six wells which heretofore have been carried as locations or rigs up have been suspended until spring as the season is growing late and cold weather already has set in.

Fisk and others' No. 1 Harper, C NE NE Section 21-34-6w, is drilling at 645 feet.

Lon Crumley's No. 1 Jones, C NW SE Section 31-34-5w, is fishing at 2,700 feet.

The Hannah-Porter Co.'s No. 2 Britton, SW NE NE Section 23-34-6w, is drilling at 1,205 feet.

Indian Oil Co.'s No. 1 Reickhoff, SW SE Section 3-34-6w, is drilling at 1,750 feet, and its No. 2 Winkler, W SW SW Section 23-35-6w, is fishing at 2,585 feet.

R. C. Jeffries' No. 1 Lukens, C SE SE Section 1-33-6w, is drilling at 1,050 feet.

Lawler & Hoer's No. 2 Harland, C NW NW Section 8-33-5w, is drilling at 1,780 feet.

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The quality is controlled from furnace to finished pipe
LAPWELD PIPE ... ... SEAMLESS TUBING
ALLEGHENY STEEL COMPANY
BRACKENRIDGE PENNA
Sale Offices and Warehouse Stocks in the principal cities

Montana Headlight Oil Co.'s No. 3 Yunck, W SW SW Section 1-34-6w, is drilling at 2,605 feet. Montana Power Gas Co.'s No. 1 De Zort Unit, 700 feet N C&L Section 23-35-5w, is drilling up bailer at 2,715 feet, and its No. 1 Gaines, C NW NE Section 6-33-5w, topped the Colorado at 425 feet, set the 10-inch at 603 feet and is drilling at 670 feet. Same company's No. 1 Sheuren, C SW SW Section 21-33-5w, is drilling at 2,580 feet.

Olive Oil Co.'s No. 2 Winkler, NW NE Section 35-35-6w, is drilling at 2,325 feet.

Santa Rita Oil & Gas Co.'s No. 4 Cardwell, NE NE Section 22-35-6w, is drilling at 2,625 feet, and its No. 4 Tribal, C N half SW Section 15-35-6w, is drilling by tools at 2,250 feet.

R. C. Tarrant's No. 2 Getty, NW cor. SE Section 2-34-6w, is drilling by tools at 2,700 feet, and his No. 5 Haglund, Jr., C SW NE Section 13-34-5w, is drilling at 775 feet. Tarrant's No. 3 Miller, E NE NE Section 24-34-6w, topped the Colorado at 445 feet and set the 10-inch on bottom at 475 feet with 50 sacks, and his No. 1 State, C SE SE Section 36-34-6w, is drilling up bailer at 2,655 feet. The Texas Co.'s No. 1 Jones, C NE NE Section 6-33-5w, topped the Colorado at 462 feet and is drilling at 650 feet, and its No. 5 Purdy, NE NW NW Section 35-35-6w, is shut down at 300 feet.

Watson and others' No. 1 Simero, NE SW NE Section 1-33-6w, is drilling at 1,950 feet.

Big Horn County

Enterprise Oil Co. and others' No. 2 Lynde, SW cor. SE Section 21-6s-35, Lodge Grass Creek, is drilling plug after cementing the 4½-inch at 3,500 feet.

Carbon County

Ohio Oil Co.'s No. 14 Maddox, C NW NW Section 10-7s-21, Dry Creek, is drilling at 6,104 feet in rainbow shale.

Cascade County

Ralph Chamberlain and others' No. 1 Heldman, near C SE Section 6-19-2w, Crown Butte, is drilling at 1,950 feet in the Kootenai.

Liberty County

J. H. Hamilton and others' No. 1 Northern Farms, C NE SW Section 10-37-5e, Flat Coulee, is fishing for underreamer lug at 1,565 feet. Western Natural Gas Co.'s No. 3 Shaffer, SW SE Section 14-37-4e, Whitlash district, is fishing for tools at 900 feet, and John Wilde's No. 2-A Mahoney, SE SW Section 23-37-4e, is drilling at 300 feet.

Petroleum County

Guy Smith and others' No. 1-A, SE cor. Section 3-13-26, Flatwillow, was abandoned at 2,200 feet after finding water in third Cat Creek. Rig was skidded to NE SE SW Section 33-13-26, for No. 3, which is spudding at 140 feet.

Phillips County

Bowdoin Gas Utilities Co.'s No. 527, C SE NE Section 14-31-34, Bowdoin district, had 500,000 feet of gas at 800 feet and is drilling at 850 feet. The British-American Syndicate's No. 1 Hedges, S NW NE Section 17-32-33, was completed at 1,053 feet for 2,000,000 feet of gas.

Stillwater County

Continental Oil Co.'s No. 1 Orr, SW NW SE Section 18-5s-17, Dean-Ingersoll district, is drilling at 1,014 feet in sand and shale in the Frontier series.

Teton County

Ned Cheadle and others' No. 1 Balsinger, NE SE NW Section 20-27-5w, West Ponders, set the 5⅛-inch at 2,368 feet and is drilling at 2,380 feet.

Toole County

T. P. Kyle and others' No. 1 Clark, SW cor. SE Section 19-37-1e, Bow and Arrow district, is spudding.

Imperial Petroleum Co.'s No. 14 Bluhm, SW NE NE Section 19-35-1w, Kevin-Sunburst Field, is drilling at 1,275 feet feet, and the Bi-State Oil Co.'s No. 3 Haemel, SE NE Section 3-34-1w, is drilling at 1,150 feet. A. Beardsley's No. 3 Swears, C SE NW Section 9-35-2w, is drilling at 1,235 feet.

UTAH

Mountain Fuel Supply Co.'s No. 2 Murphy, NE NE Section 21-3n-24, Clay Basin, Daggett County, is drilling at 5,627 feet. Ramsey Petroleum Co.'s No. 1 Senior, SW NE SW Section 13-26-7e, Last Chance Dome, Emery County, is shut down for orders at 2,960 feet. It may be deepened or completed at present depth as a gas well. It gauged 21,000,000 feet of gas in hard red limestone at 2,700-24 feet and hard gray lime at 2,724-71 feet. Some gas was reported encountered below that depth. Longwell Petroleum Co.'s No. 1, SE SW SE Section 35-3n-5e, Summitt County, is drilling at 1,160 feet in shale.

WASHINGTON

Miocene Petroleum Co.'s No. 1, NE NW Section 17-12-19, Union Gap, Yakima County, which has been idle for a year, has resumed and shut off water at 3,000 feet with packer and is drilling ahead. Simcoe Oil Co.'s No. 1, NW NW Section 24-11-17, Yakima County, is reported abandoned at 2,760 feet.

Eastern Fields

(Continued from Page 58)

This is in Curtis district. In this district, the same company has reached 1,500 feet in No. 6 on this farm. Henderson Oil Co. is down 640 feet on the F. H. Bee, Jr., farm, No. 3. In Spencer district, O. G. Epling has reached 2,210 feet on the L. P. Starr farm. J. D. Silcott and others are drilling at 1,800 feet on the John B. Lukens farm, a test. In Smithfield district, Howard Bartlett and others have made locations on the Columbus Brannon and Leonard Brannon heirs farms. Guy Boggess and others have made a location on the Darle Young farm. United Fuel Gas Co. has rigged up for No. 4,536 on the T. Ferrell farm. Sand Run Oil Co. is drilling at 1,536 feet in the second test on the Josephine Young farm.

In Wetzel County, Jason Wade and others have started drilling on the Lewis Taylor farm in Proctor district and is also drilling at 620 feet on the Joseph Shuler heirs farm. In Center district Blank Oil & Gas Co. is down 1,740 feet on the James Garrett farm.

SOUTHWEST PENNSYLVANIA

In Southwest Pennsylvania, there was but one completion and activity appears drawing to a close for the season. In Fraklin Township, Greene County, Carnegie Natural Gas Co. drilled deeper No. 2 on the Emma Lapping farm. There was about 497,000 feet of gas a day in the Gordon Stray sand. The top of the sand was at 2,770 feet with gas showing at 2,780-2,783 feet.

In Greene County, Equitable Gas Co. has a fishing job in No. 1 Margaret Kiger in Wayne Township, which is being drilled deeper. The present depth is 2,385 feet. In Springhill Township, New Oil & Gas Co. has a rig standing on the Anna Chambers farm. In Richhill Township, about 1½ miles below Ryerson Station, Guy Patterson is drilling at 885 feet No. 3 on the T. M. Ross farm. In Dunkard Township the depth of the Vance leases on the James and Willis Vance farm is now 820 feet.

In Amwell Township, Washington County, Carnegie Natural Gas Co. is drilling the Fifth sand on the A. M. Cole farm. Top of this sand was at 2,968 feet. If no production is found in this formation it is likely it will be drilled to the Bayard sand at about 3,300 feet. Manufacturers Light & Heat Co. is drilling at 535 feet on the R. A. Rankin farm which offsets the C. W. Farabee good well.

G. S. RUSSELL DIES

OLEAN, N. Y., Oct. 13.—Gilmore S. Russell, 90, widely known oil producer, died at his home here. He was an organiser and a former vice president of the Producers Gas Co.

TECHNICAL QUESTIONS ANSWERED

By Charles K. Francis, Ph. D., Technical Editor

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible.

Inquiries must be signed but only the given initials will be printed. The source of the question is considered to be confidential.

Questions requiring a discussion of patents, the use of intricate formulæ, extended computations, or cost estimates cannot be considered.

When the matter is of general interest the reply will be published within a reasonable time.

Chemical Used in Petroleum Refining—Activated Earths

Fuller's earth was discussed in the issue of May 24, 1934. Since then there have been several requests for a similar treatment of the activated earths that are used as filtering mediums in petroleum refining.—Editor.

Fuller's earth is a clay which is naturally active as an agent for the bleaching of oils; it is the decolorizing power that is used to distinguish fuller's earth from the nonfiltering earths. There are other earths that are inactive as color removers until they have been leached with acid, preferably hydrochloric, washed, and dried; these are called activable clays. The bleaching power of some naturally active earths is considerably increased by the acid treatment but others have it lowered, and some of the strongest decolorizers are inactive until acid treated. Fuller's earth is used largely for the refining of lubricating oils in percolators, and for this purpose a granular form is required, but the activated earths are added to the oil in a finely divided form, intimately mixed by agitation, and then separated from the oil by means of a filter press.

P. G. Nutting, U. S. Geological Survey, explains that the filtering earths are the product of weathering, especially the action of water, of igneous rocks, such as dunite, granite, basalt, and rhyolite. The important deposits are minerals included under the general classification of bentonite. The common designations being Utah, California, and Death Valley clays. While there are many deposits of activable clays or earths known, the worthwhile deposits, that are adapted for yielding a material of high activity, are comparatively rare.

Mr. Nutting states, "The complex silicates constituting the active clays range from slightly acid aluminosilicates to those that are only partly leached and decidedly baroid. In the latter class acid treatment is indicated to remove the excess of the stronger bases potassium, sodium and calcium by replacing them with hydrogen. Good natural filters may be composed largely of silicates rich in magnesia but are more commonly compounds of alumina, iron, and silica. After an acid treatment, thorough washing is required to remove all salts formed, because otherwise these may be adsorbed in preference to the colored ions to be removed in the bleaching process. A wash with even dilute alkali potassium hydroxide will ruin a filter, but a final dilute acid wash is not seriously detrimental.

"An active bleaching clay placed in a hydrocarbon containing no oxygen atoms (such as petroleum) will adsorb colored ions of the nature C_nH_{2n-x}, detached parts of multiply-bonded carbon chains of rings. If these are not present, a good filter will break out (crack) and adsorb parts of even saturated chains or rings. If the filter is not completely dry, H and OH ions remain on its surface and its activity is much reduced, so that it adsorbs only the blackest hydrocarbon groups and passes the yellow and red fractions.

"Many of the most powerful bleaching clays will crack water-white gasoline, melted paraffin, and even highly refined and stabilized laxative mineral oil, immediately adsorbing the brown portion cracked out and leaving the liquid colorless.

"The bentonitic type of clays respond best to acid leaching. Properly prepared, they are not excelled in activity by any clay or synthetic bleach."

After the clay has been mined, crushed and acid treated, either sulphuric or hydrochloric, a thorough water wash dissolves and eliminates the soluble salts from the treated pulp. This is followed by dewatering, drying, grinding and sacking. In contrast to the simple drying and grinding steps necessary for the marketing of a raw clay like fullers earth, there are many expensive processing steps in the acid treatment of a clay requiring laboratory control at all times. The clay undergoes a physical as well as a chemical change with this acid treatment, becoming lighter in color, less compact and losing all of the waxy luster that originally characterized it. Analyses show that the iron, alumina, calcium, magnesium, etc., is decreased and that compared to these constituents the silica has become a relatively larger quantity in the finished material. The pH is changed and any carbonates, free alkaline material and most organic matter is eliminated. The loss of substance from the original raw clay is a definite continued expense in the preparation of an activated clay. Some activable earths are shipped in the raw state and then prepared for contacting at the refineries.

Activated clays are used in the refining of lubricating oil after the oil has been treated with acid, the operation being known as the contact method. The finely divided material, about 200 mesh, may be added to the oil as a dry powder or as a slurry and thoroughly mixed with the oil to insure complete contact. During this mixing the oil is usually held at a temperature between 300° and 400° F., and protected from the air. When the desired color has been obtained the oil is separated from the earth by passing through a filter press. This method has the advantage that in addition to removing color it serves to neutralize any acid that may be present.

The activated clays have the advantage that under the contact method less earth is required and the oil loss is less than that obtained with the natural earths for a given color.

When used dry a high-grade activated clay will give good bleaching of gasoline, kerosene, neutral oils, and paraffin wax. Some refiners report that they mix the earth with the oil and pass it through a pipe still.

References: Nutting, P. G., The Bleaching Clays, Cir. No. 3, U. S. Geol. Survey, 1933. Burghardt, O., Activated Bleaching Clays, Ind. Eng. Chem. 23, 800, 1931. Bierce, E. C., Advantage of Contact Filtration, The Oil and Gas Journal, September 29, 1927, page 191. Davis, L. L., Principles of Contact Filtration, The Oil and Gas Journal, March 8, 1928, page 148. Nutting, P. F., Nature of Petroleum Filtering Earths, The Oil and Gas Journal, June 28, 1928, page 138.

Saybolt Thermoviscometer Values and Absolute Viscosities

Can you supply us with a formula for the conversion of the viscosity of kerosene as measured on the Saybolt thermoviscometer to either absolute or kinematic viscosity or show what the relation is?—C. H. B.

The corresponding absolute viscosities and Saybolt thermovis indications are discussed in an article, "Measurement of Absolute Viscosity of Light Distillates with the Thermoviscometer," by A. R. Fortsch and R. E. Wilson in Ind. Eng. Chem., 17, 291 (1925).

Ten times the number of seconds required for the liquid to rise in a capillary to a fixed mark, when corrected to 60° F., is reported as the Saybolt thermoviscosity.

These investigators used one of these instruments for determining absolute viscosity from the observed time of efflux and the equation:

$$Z = Cpt - \frac{C_2 S}{t}$$ where, for the instrument used

Z = viscosity in centipoises
C = 0.00001104
p = 50.54 grams per sq. cm.
C_2 = 11.5
S = density of viscous liquid at temp. of exp. in gms. per cc.
t = time of efflux in seconds

Fortsch and Wilson present a chart centipoises vs. Saybolt thermo time in seconds. The relative figures, approximate, are—

Thermo seconds	Kinematic vis. centipoises
30	1.8
40	2.6
50	3.2
60	3.8
70	4.6
80	5.1
90	5.8
100	6.4

A kerosene of 0.8179 specific gravity had a thermo time of 37 seconds at 74.2° F., or an absolute viscosity of 1.8980.

Meaning of Octane Number for Motor Fuels

Will you kindly explain the definition for octane number?—C. M.

Octane number, as used for expressing the antiknock value of gasoline, is simply a reference standard unit or measure and has no meaning as to the hydrocarbon content of a gasoline or motor fuel. When making a test to determine the octane number, the fuel is examined under prescribed conditions in a standardized, one-cylinder gasoline engine. This engine is equipped with apparatus for registering the combustion knock. It is so arranged that it may be operated alternately on one of two fuels without stopping. Under the conditions of the test, one of the fuels is unknown—that is the sample test—and the other is the standard fuel, the octane value of which is known. The octane standard fuel is made from two hydrocarbon liquids, normal heptane and octane, heptane being a bad knocker and the octane knocking not at all. By blending these two liquids in varying proportions a mixture may finally be prepared which will exactly match the knock performance of the unknown fuel. The result is expressed in octane number, meaning the percentage of octane that has been blended with heptane to match the unknown fuel under test. For example, when we use the term 65 octane number gasoline, the meaning is that this fuel will knock to the same degree as a mixture containing 65 per cent octane and 35 per cent heptane.

There are a number of octanes known to the chemist. The particular one used for this purpose is 2-2-4 trimethyl pentane. Both hydrocarbons are expensive so the practice is to make a series of reference fuels in large quantities, testing portions of these against actual octane-heptane mixtures and use these fuels for routine testing.

Endpoint Highest Temperature Indicated by Thermometer

The exact meaning of endpoint of gasoline is desired. We want to know if the temperature is to be reported as the endpoint when the flask becomes dry or after?—W. F. P.

The endpoint of gasoline as determined by the distillation test is well defined. The details of the standard method are to be found in the Federal Standard Stock catalog VV-L-791, Section IV, part 5. Near the end of the description of the method this statement is made:

"No adjustment of the heat shall be made after the liquid residue in the flask is approximately 5 ml unless the time required to bring over the last 5 ml of distillate and reach the endpoint exceeds 5 minutes. The endpoint is the maximum temperature observed on the distillation thermometer and is usually reached after the bottom of the flask has become dry. If the bottom of the flask is not dry the operator shall record this fact.

"In case the time required to bring over the last 5 ml of distillate and reach the endpoint exceeds 5 minutes the test shall be repeated and the heat shall be adjusted when the liquid reaches 5 ml. This adjustment may be either an increase or decrease but must accomplish the purpose of bringing the period required to vaporize the last 5 ml of distillate and reach the endpoint within the limits of 3 and 5 minutes."

NATURAL GAS DEVELOPMENTS

Competitive Proposals to Supply St. Thomas, Ont.

ST. THOMAS, Ontario, Oct. 13.—Two competitive projects to supply natural gas to St. Thomas have been submitted recently to the city gas commission. The proposals were referred to the city council which decided to call an independent gas engineer to make a survey of the local situation. Before an engineer is engaged, however, City Engineer W. C. Miller will secure information as to the cost of such a survey, and a conference will be held between the city council and the gas commissioners.

One of the present offers is to sell purified natural gas to the city in wholesale quantities under a 10-year contract with option of renewal. The offer is made by Bon Jasperson of Kingsville, who controls some gas production in the Tilbury and Essex Fields. An alternative offer is made by W. F. Kingston of St. Thomas who has a number of producing wells and is prepared to undertake extensive development if his offer is accepted.

Mr. Kingston offers a price of 60 cents per 1,000 feet for natural gas metered at the city limits, on a 20-year contract. Mr. Jasperson offers a sliding scale, of 55 cents per 1,000 feet for the first 5,000,000 feet per month; 50 cents per 1,000 feet for the next 5,000,000 feet; and 40 cents per 1,000 feet for monthly consumption above 10,000,000 feet. In both cases the city is to handle the local sale and distribution.

H. E. Merrill, of the Dominion Natural Gas Co., informed the council that the Dominion company or the Southern Ontario Gas Co. were prepared to take over Mr. Jasperson's contract and deliver purified gas to the city limits, if the Jasperson offer were accepted. The Southern Ontario Gas Co. was also prepared to furnish pipe to carry the gas from the city limits to the municipal gas holder, laying to be at the expense of the city. The possibility of supplying mixed natural and artificial gas was also taken under consideration.

"Natural Gas Night" for Atlantic City Session

Due to the fact that no spring meeting of the Natural Gas Department has been held for two years; an unusually large attendance of natural gas men is expected at the Natural Gas Department meetings of the American Gas Association at Atlantic City, N. J. Accordingly, the entertainment committee has for the first time decided to have a special evening's entertainment primarily for natural gas members and their friends. This will be held in the Grand Ballroom of the auditorium on the evening of October 29, from 9 o'clock until everyone is ready to go home.

The special entertainment committee consists of F. A. Miller, chairman; N. C. McGowen, J. B. Tonkin, William Moeller, W. C. Beckjord, S. W. Meals, and M. W. Walsh.

Frank L. Chase, chairman of the Natural Gas Department, and Mr. Miller, chairman of the special entertainment committee, join J. D. Creveling, chairman of the general entertainment committee, in urging a large attendance on "Natural Gas Night."

BLENHEIM RATE NEGOTIATIONS

BLENHEIM, Ontario, Oct. 13.—The town council has appointed a committee to confer with the Union Gas Co. of Chatham with regard to a revision of the natural gas rates here.

Oriskany Sand in Potter County, Penna., Continues to Supply Big Gas Wells

By ROBERT C. CONINE

COUDERSPORT, Pa., Oct. 13.—Oriskany gas sand operations in Pennsylvania in the week ending October 12, were featured by the completion of the Bayliss E. Estes No. 1, Genesee Township, Potter County, for 27,250,000 feet daily at a depth of 5,148 feet. The drill is 7 feet in the sand. There were no other completions reported in the New York and Pennsylvania fields of this section. Operations in Clarion County were uneventful.

Drilling Wells

Rig was up for the Mutual Natural Gas Co.'s well on the Presbyterian Church property in Farmington Township, Tioga County. Other Tioga County activities: E. Cabot, drilling at 750 feet on th W. F. Burroughs farm, Gaines Township; also new location on John Stiles farm, Clymer Township. East Penn Development Co. drilling at 855 feet on Roscoe Kemp farm, Farmington Township.

Potter County

Hanley & Bird were drilling at 5,583 feet on their No. 2 S. Gooch, Allegany Township, Potter County. P. P. & L. were still fishing at 5,269 feet on its Clair Doty, Hector Township, same county. Cunningham Natural Gas was shut down on its George Carrol, Oswayo Township, same county. United Producers Co. was drilling at 5,600 feet on its No. 2 M. Wilsey, Hebron Township, same county. Stocum and others were at 3,520 feet on their J. W. Wells, Allegany Township, same county. Electro Geometer was drilling at 2,905 feet on the Katherine Currier, same township and county.

Hebron Township

Activities in Hebron Township included the following: Pennsylvania Power & Light were down 1,050 feet on the Chloe Kenyon farm. Penn United was drilling at 760 feet on the Burt & Lyman properties. Lycoming was spudding on the W. B. Hemphill farm. This company was drilling at 345 feet on the W. White farm; drilling at 1,405 feet on the O. W. Greenman farm, and at 592 feet on the R. and G. Carmer farm. Potter Development Co. located its No. 2 Penn Stave, and was reaming at 530 feet at its B. L. Langworthy well. Sylvania Natural Gas was rigging up for its No. 2 John Higley, Hebron Township, Potter County.

In Genesee Township, Potter County, Bayliss was drilling at 350 feet on the Earl Pye farm. Tioga Natural Gas was shut down at 4,685 feet on its No. 1 Emporium Bank, and at 4,470 feet at its No. 2 Emporium Bank, both in Shippen Township, Cameron County. Columbia Carbon was shut down at 4,465 feet on the C. Campbell farm, Ridgebury Township, Bradford County.

New York Fields

Homestead Oil & Gas Co. was drilling at 2,630 feet on the John Gregg farm, Bristol Township, Ontario County. The Red Medina was reached at 2,532 feet in this well. Geneva Gas was drilling at 1,050 feet on the Stewart Nurseries property, Phelps Township, Ontario County. Trumbull was shut down at 2,665 feet on the Ethel Arnold farm, Galen Township, Wayne County. Belmont Quadrangle Development Co. was drilling at 4,524 feet on the Costom farm, Greenwood Township, Steuben County. This operation is of particular interest in that the well is expected to be completed in the Oriskany sand. The well has been cased and cemented and if and when the drill goes through the Oriskany, the result will probably decide future development in this area. Another Greenwood well is that of Wittmer Oil & Gas Co., now running pipe at 4,715 feet.

Hadley & Rogers are drilling at 420 feet on their Cato Bank, Conquest Township, Cayuga County. This well showed a heavy flow at 413 feet. Belmont Quadrangle was drilling at 2,390 feet on its Frank Whelan well, Rading Township, Schuyler County. Salt water was found at 2,320-31 feet. Empire was drilling at 210 feet on the Dean Estate, Alma Township, Allegany County. Higgins and others were building rig on the Steadman farm, Allen Township, same county. Tri-State Gas was moving in for its N. D. White, Bath Township, Steuben County.

Clarion County

In Clarion County, Fryburg Motor was shut down for water at 1,300 feet on the McClosky farm, Farmington Township. Kelley interests were replacing leaky casing at 1,300 feet on the Korb & Beary farm, Washington Township; Jeannerat was drilling at 250 feet on the Bartlett farm, Piney Township. Alum Rock Gas Co. was rigging up on its Bank Lot site, Highland Township, and on the J. P. Glass farm, Perry Township. Vogelbacher Brothers were rigging on the Lou Pfendler farm, Knox Township, Clarion County.

Wichita Falls Franchise Before the City Council

WICHITA FALLS, Tex., Oct. 15.—The city council of Wichita Falls has deferred further action upon the franchise sought by the Wichita Falls Gas Co. to establish a gas distribution system here in order to give attorneys for the applicant and the city further time for perfecting the proposed ordinance granting a franchise in accordance with recommendations made October 1 by Dr. A. H. Douglass, city manager.

The postponement was at the request of Orville Bullington, attorney for the gas concern.

Revisions as suggested by the city manager were to have been reported by a special committee composed by Mr. Bullington, Judge C. B. Felder, B. D. Sartin, and W. E. George, city attorney.

The ordinance granting the franchise for 25 years was passed one week ago on the first reading.

EDMONTON GAS BREAK

EDMONTON, Alberta, Oct. 13.—A break in the main feed line of Northwestern Utilities, Ltd., in the course of the annual pressure test on October 4 interrupted the Edmonton gas service. Emergency crews repaired the break, but the gas was not turned on till radio broadcasts, telephone calls and door-to-door calls were made to notify consumers who might have left gas valves open. The service was fully restored within four hours.

Appraisal of Utilities Goes On in Kansas City

Three engineers of the Missouri Public Service Commission, with 82 assistants and workers, are engaged in appraising three Kansas City utilities—gas, telephone and electric—to determine the reasonableness of the rates.

The engineers are E. L. Manson, in charge of the appraisal at the Kansas City Power & Light Co.; J. Ben Blanton, at the Kansas City division of the Southwestern Bell Telephone Co., and H. C. Bockhoff, at the Kansas City Gas Co., a Doherty enterprise. Their chief is S. B. Nelson, chief engineer for the commission.

The appraisal consists of an audit of the books of each company, inventory of physical items, securing of present day material and labor prices in order to determine the cost of reproduction, and making a depreciation study of the entire system of each utility.

The magnitude of the appraisal is indicated by a statement to the Kansas City Star, by Mr. Nelson that 25,000 sheets of paper, 8½x11 inches, will be required to list the items of property of the power and light company; nearly 20,000 sheets for the telephone concern, and 10,000 sheets for the gas utility.

Fifty-seven men have been engaged in the appraisal at the light company since January 1, 15 at the telephone company and 10 at the gas company. The appraisal of the gas and electric companies began September 15. Of the total number of workers only 10 are regular commission men, the others are temporarily hired. Additional help will be required as the work progresses. The appraisal of the utilities will take half a year more. The light company was last appraised by the commission in 1915, the gas company in 1923, and this is the first time for the telephone company.

In auditing the company books the accountants go over all charges to operating expenses, what the commission calls "proper charges" having been determined previously by the commission. All revenue, income and operations are closely scanned.

The inventory of the physical items covers a wide range of properties. This includes the listing of everything from waste baskets to pipe lines, miles of copper wire, counting telephone instruments by checking company records, measuring miles of cable and counting telephone poles, cross beams, insulators, wires and underground cables.

The desks in the appraisal offices are covered with blue prints, graph paper and books. A clerk enters with sheafs of papers. He goes to a desk. Notations are made. A clerk records that so many poles are painted with creosote. Another has figures on how many bricks there are in manholes. He knows the size of the manholes lined with a standard number of bricks, so he checks the number of manholes to arrive at the total number of bricks.

"In fact," Mr. Nelson said, "we itemize everything you can think of that equips a large utility office building. We miss nothing. We check the purchase records and other company records. We know the physical condition of pipes, whether they are lead or cement. In short, we see if the stuff is actually there that the company records show. We have men going around with service crews to report on conditions of wiring, piping, and so on.

"For the first time our engineers have had enough information to make a complete rock map of the city."

FIELD PROBLEMS FROM READERS

Edited by Thomas F. Smiley

This department is conducted in order that men connected with the drilling, producing and transporting branches of the petroleum industry may obtain aid in solving problems that confront them in their work. Readers are invited to send questions freely. These questions will be placed in the hands of persons capable of answering them authoritatively, and the answers, based on the best available information, will be published.

Each question should give as much detail as possible, especially if it involves depths of sands, types of sands and operations on adjoining or nearby properties. The source of questions will be considered confidential, and only the initials of the sender will be published. Questions involving patented processes, intricate formulas or estimate of cost cannot be answered. If an immediate answer is important, one will be given by mail when the writer requests it.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or improved old ones.

Noting Signs of Petroleum While Drilling in Wildcat Areas

I would be appreciative of such information as you could give me concerning the signs of oil that should be watched for in the course of drilling a test well. I know about some of the more familiar indications that are commonly known among drillers, but I believe geologists and petroleum engineers watch for some things to which most of the drillers pay little attention. My idea is to get as much engineering knowledge of different field operations as I can to add to what I get by working on the lease.—H.F.E.

Your idea of acquiring technical knowledge in addition to actual field experience is commendable and as time passes you are almost certain to gain very practical rewards besides the sense of satisfaction that comes from increased efficiency, self-confidence and the feeling that you are making progress. Professor L. C. Uren's work on "Petroleum Production Engineering" contains an excellent discussion of subsurface indications of oil that should be observed in drilling test wells. He says:

"During the drilling of a test well there are occurrences that may be significant in indicating the proximity or presence of petroleum. Knowledge and observation of these will enable the geologist to advise those in charge of drilling operations concerning the prospects of further drilling. Even when the surface signs are unmistakable, the evidence to be obtained from the log of the well during the drilling stage will be of great value in checking previous estimates and also in the subsequent development of the field through the drilling of additional wells.

"Oil-saturated sand or even traces of oil in pulverized material bailed or pumped from the well are, of course, direct evidence and usually justify a pumping test of the stratum from which they come. Such a test is often necessary to determine whether or not oil can be produced in sufficient quantity to repay the cost of operation. The driller will always be on the alert for 'shows' of oil when the drill enters a soft, porous sandstone after penetrating a hard layer of close-grained 'shell.' It will often happen that the finely pulverized material pumped or bailed from the well will be so thoroughly washed that its petroliferous character is not evident until tests are made. Ether, chloroform or acetone test will usually disclose the presence of oil.

"Flows of hydrocarbon gases from a drilling well are always favorable evidence, especially if they contain gasoline vapors or if they have a petroleum odor. Many sedimentary formations produce marsh gas (methane) which, if dry (that is, without hydrocarbons of higher molecular weight) is often formed in the absence of petroleum, and therefore it is not necessarily indicative of the presence of oil.

"Traces of solid or semisolid hydrocarbons, such as mineral wax, asphalt, fossil resin, tar or even coal or lignite, in the returns from a well constitute favorable indications of the presence of oil.

"Waters and gases containing hydrogen sulphide or sulphur dioxide are generally favorable indications unless the water is hot. Hot sulphur waters are characteristic of regions under the influence of volcanic and solfataric activity, conditions generally unfavorable for the accumulation of petroleum.

"The presence of igneous or highly metamorphosed rocks is necessarily regarded as unfavorable for the discovery of petroleum in the formations beneath. Brine is generally looked upon as an unfavorable indication when encountered in a prospect well. Though it is nearly always associated with petroleum, it generally underlies the oil; consequently, if a well produces brine, it is often inferred that the zone in which oil might be found has been penetrated and found barren.

"Aside from the more direct indications of petroleum suggested above, it should be pointed out that mere alternations of stratified porous and impervious beds in horizons known to be petroliferous are in themselves favorable indications. Great thicknesses of either coarse or close-grained rocks, without variety in porosity and texture, never offer favorable conditions for the accumulation of petroleum."

Seismograph Closely Associated With Study of Earthquakes

I noticed a statement in your answer to a question signed A. E. E. in the The Oil and Gas Journal of September 6, 1934, that $1,500,000 was estimated to have been spent in 1933 for seismographic work in Oklahoma and Kansas. I would like to ask for some information about the development of this particular geophysical instrument, the principle upon which it works and just how it is operated in the field.—R. N. T.

Development of the seismograph is closely associated with the study of earthquakes. The name itself is derived from two Greek words, one meaning earthquake and the other to write. Initial work in the development of the seismograph is credited to John W. Mallet, scientist, who with his father prepared for the British Association a catalog of earthquakes. In 1851 he demonstrated that the velocity of propagation of elastic waves varies in different rocks, and also in different directions in the same rock. Out of this knowledge has been developed the science of seismography as applied to exploration for hidden structures in oil provinces of all parts of the world.

The seismograph party sets up its recording instrument and connects to it, by means of surface wires, any number of geophones that are buried in the earth at various places around the recorder. The geophone, as its name indicates, is an instrument for the detection of sounds transmitted through the earth.

Holes have been prepared at points in the vicinity of the seismograph and these are charged with dynamite. When these charges of explosive are set off waves move through the earth's crust and are reflected back to the surface, picked up by the geophones and transmitted to the seismograph where they are recorded.

From field experience the geophysicist has found that the "reflection" method of seismography is best suited to his needs. This method is based upon the time and velocity required to reflect the wave from the key bed to the surface. The velocity of travel of the elastic wave through each type of formation is known fairly accurately. With this information at hand it is possible to interpret the records made by the seismograph and translate the values of time and velocity into depth of feet to the key beds.

In Oklahoma and in parts of Kansas it has been found that the Viola lime makes an excellent bed for reflection. The wave set up by the explosion of the charge of dynamite travels downward through all the overlaying layers and strikes the upper portion of the Viola and then starts to travel upward again. The path of this wave takes the general form of a V, the place of the shot being the top of one arm of the V and the geophone at the top of the other arm. A somewhat similar method of depth-sounding has been adapted to the measuring of ocean depths.

Why Was It Called That?

GATE VALVE

The gate valve, familiar in the oil industry, is called that because it is provided with a sliding gate, which opens the full area of the pipe, on the principle of a gate in a water flume. A huge bronze gate valve, valued at $4,000 was salvaged recently from a 40-year grave in Brooklyn, N. Y., according to Joseph A. Vertefeuille, borough engineer. The valve originally was planted under an East New York street in 1888 at the head of a main planned to extend into prospective residence areas which failed to materialize. The valve began a new usefulness as part of Brooklyn's water system under Fort Greene Park. The borough engineer said that the valve will control a main line watercourse and will be a vital safeguard if pipes between it and smaller feeders should burst.

Desires Names of Agencies That Execute Production Orders

The question has arisen here in Michigan as to whether wells located on less than 10 acres should be prorated according to the acreage called for in the lease. For instance, an oil well on 10 acres is given a potential of 1,000 bbls. and is prorated at 150. A well located on a five-acre tract, with similar potential is prorated at 75 bbls. Other wells on less than 10 acres are prorated in the same way. This practice is being followed here and I would like to know whether the same practice is followed in other oil-producing states or is merely a local regulation. There are other questions concerning proration on which I should like to receive light. Can you give me a list of the agencies in the different states which, like the Michigan Producers Proration Committee in this state, are charged with the job of administering petroleum regulations under the code?—D.S.M.

Information at hand does not indicate that the proration practice you describe is in effect in other states. Appended are the agencies in the various oil producing states which are charged with execution of the orders of the oil administrator. The states without such agencies regularly set up under the laws of the state are New York, Ohio, Indiana, Illinois, Kentucky, West Virginia and Colorado. Most of these, however, have a voluntary agreement among the operators to stay within allowables. Chairmen are given for your convenience in addressing communications.

Arkansas—Hon. J. Marion Futrell, Governor of Arkansas, Little Rock, Ark.

California—Ralph B. Lloyd, Central Proration Committee, 1110 Security Title Insurance Building, Los Angeles, Calif.

Kansas—Hon. Homer Hoch, Chairman, Corporation Commission of Kansas, Topeka, Kans.

Louisiana—Hon. Oscar K. Allen, Governor of Louisiana, Baton Rouge, La.

Michigan—E. F. Clagett, Michigan Producers Proration Committee, care of Pure Oil Co., Saginaw, Mich.

Montana—Oil Conservation Board of State of Montana, P. O. Box 1314, Great Falls, Mont.

New Mexico—C. J. Dexter, Chairman, New Mexico State Production Committee, Artesia, N. Mex.

Oklahoma—Paul A. Walker, Chairman, State Corporation Commission, Oklahoma City, Okla.

Pennsylvania—Hon. Gifford Pinchot, Governor of Pennsylvania, Harrisburg, Pa.

Texas—Hon. Lon Smith, Chairman, Railroad Commission of Texas, Austin, Tex.

Wyoming—Hon. Leslie A. Miller, Governor of Wyoming, Cheyenne, Wyo.

XUM

PERSONAL PARAGRAPHS

JOHN D. ROCKEFELLER, SR., is now domiciled at his winter home, The Casements, Ormond Beach, Fla.

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C. D. DOWD has been appointed traffic manager of the Tide Water Oil Company and is now located at the New York offices of the company. He formerly was traffic manager of the Tidal Refining Company, Tulsa.

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CHRISTIAN ENGELBRECHT, of the Socony Vacuum Oil Company, Inc., Hamburg, Germany, arrived in New York last week on the Bremen of the North German Lloyd, for a visit to the main offices of the company.

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PROF. CHARLES A. MANN, head of the department of chemistry, University of Minnesota, addressed the Midland, Mich., section of the American Chemical Society on "Organic Compounds as Inhibitors of Corrosion."

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G. L. STEWART, R. J. BENNETT, F. B. BIMEL, DR. B. R. BURNS, B. A. MYERS, and H. L. REIER, of the International Petroleum Company, Ltd., left New York City last week on the Grace liner, Santa Maria, for Talara, Peru.

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HIRAM R. SPOONER, of Calgary, Alberta, is making a short visit to Toronto and other eastern Canada points.

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BUCK STURM, of Nolan & Sturm, drilling contractors, has returned to West Texas from Buffalo, N. Y., where he was on vacation.

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BURR KETCHAM, of the Standard Oil interests in Istanbul, Turkey, arrived in New York last week on the Rex of the Italian line.

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M. M. ROGERS, formerly production foreman in the Judkins, Texas, district, for the Humble Oil & Refining Company, has been transferred to Jal, N. Mex.

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MR. and MRS. ARTHUR IDDINGS, of Talara, Peru, visited Petrolia recently. Mr. Iddings is general manager for the International Petroleum Company in Peru.

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EDWARD T. MERRY, JR., arrived at Cook Memorial Hospital in Fort Worth, Tex., on October 8. His father is a member of the firm of Merry Brothers & Perini.

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R. R. McCARTY has been transferred from McCamey, Tex., as assistant division engineer to the new Andrews district, by the Humble Oil & Refining Company.

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W. T. WALLACE, vice president of the Venezuela Gulf Oil Company, New York, is en route to Venezuela to inspect the properties of the Gulf interests. He will be gone several weeks.

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MONROE G. CHENEY, president of the Anzac Petroleum Corporation, Coleman, Tex., and secretary-treasurer of the American Association of Petroleum Geologists, recently addressed the Fort Worth Geological Society in the Texas Christian University geological laboratory at Fort Worth on the "Concho Arch" and "Geological Factors Affecting Well Spacing."

ALF G. HEGGEM is visiting Massillon, Ohio, to attend the sixty-second wedding anniversary of his parents.

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C. B. LEAVER, vice president of Imperial Oil, Ltd., has been transferred from the office at Toronto, to New York City.

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H. P. JUDAH, head of the Standard Oil Company of Venezuela personnel section, has returned to Caripito after spending a month's vacation in the United States.

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NEAL McCULLOUGH, Panhandle Lumber Company, Pampa, Tex., has been added to the Rig Building Practices Committee in Region No. 4, in place of R. W. REYNOLDS.

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O. D. DISCH, of the Standard Oil Company of Venezuela's production department in the Quiriquire Field, has returned by airplane from a leave of absence in the United States.

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GEORGE L. STEWART, recently transferred from the Sarnia plant of Imperial Oil, Ltd., to the office at Toronto, received a gold watch from employes and officials of the plant before his departure.

HOWARD D. A[illegible]IA, president of the Golden Oil Company, has returned to Michigan from Logan, Ohio.

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A. W. PEAKE, of the Standard Oil Company (Indiana), is in Washington, D. C., for a couple of days on business.

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C. L. JOHNS, assistant to the chief scout for the Pure Oil Company at Houston, Tex., has been transferred to the company's office at Corpus Christi, Tex.

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H. P. FOGLE, of the Pure Oil Company field office in Porter Township, Midland County, Michigan, last week visited Chicago and western Michigan on a vacation trip.

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C. E. CARSON, superintendent of the Regina, Saskatchewan, refinery of Imperial Oil, Ltd., since 1933, has been transferred to the Sarnia, Ontario plant as general superintendent.

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FLOYD C. LANTZ, superintendent of the Tropical Oil Company refinery at Barranca-Bermeja, Colombia, has been appointed superintendent of the Regina, Saskatchewan, plant of Imperial Oil, Ltd.

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ODIE TAYLOR, West Texas district gauger for the Humble Pipe Line Company, has been transferred to Longview, East Texas.

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A. R. HEISE, manager of the Union Oil Company's Oleum refinery recently completed 25 years' continuous service with the company and is still on the job.

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BILL EWING, tool pusher for Humble Oil & Refining Company at Kilgore, Tex., has been moved temporarily to the Cooper and Jal, New Mex., districts.

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ED WARREN, formerly with the Continental Oil Company as superintendent of the Texon and McCamey, Texas, districts, has become associated with the Carl B. King Drilling Company.

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ROBERT HEARD, assistant production manager of Imperial Oil, Ltd., is in a hospital at Calgary, recovering from injuries sustained when his automobile skidded on loose gravel and upset.

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C. B. STALNAKER, of the Independent Eastern Torpedo Company with headquarters at Shelby, Mont., recently visited the Turner Valley Field, where he supervised the shooting of Northwest Company's No. 1 C. & E. well.

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JOHN C. ARCHER, Houston Gas & Fuel Company, presided at the Houston Kiwanis Club program last week when FRANK C. SMITH, president of the Houston Natural Gas Company, delivered an address on the natural gas industry.

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H. H. ANDERSON, Washington, D. C., chairman of the labor subcommittee for the petroleum administration, was in Fort Worth, Tex., attending a meeting of company representatives and operators of Texas, Louisiana and New Mexico.

DO YOU REMEMBER?

From The Oil and Gas Journal Files

25 Years Ago

October 18, 1909

A representative of the U. S. Department of Justice is in Tulsa trying to find if there is a conspiracy between the pipe lines to keep the price of oil down. He learns from a lot of independent producers that the only reason for the low prices is that there are not enough pipe lines, and therefore not enough buyers, and that the production greatly exceeds the demand.

Underwood Nazro, of Beaumont, Tex., well known Spindletop operator, is a visitor in Tulsa.

Mike Carmody, formerly with the Ohio Fuel Supply Co., now has charge of the Caddo Oil & Gas Co.'s operations in Louisiana.

V. R. Currie, secretary to President Cullinan of the Texas Co., and Miss Lena Greer, daughter of D. Edward Greer, attorney for the Gulf Pipe Line Co., were recently married in Beaumont, Tex.

Harry Wiess, of Beaumont, Tex., and Mrs. Wiess, who was Miss Olga Keith of Beaumont, are in Europe on their wedding tour. They will return in December.

20 Years Ago

October 15, 1914

The Oklahoma Corporation Commission has forbidden the shooting of oil wells in the State during the present period of overproduction.

P. J. White and H. F. Sinclair, Tulsa oil operators, are in New York and it is reported they are negotiating with a foreign company —said to be the Royal Dutch-Shell —for the construction of a pipe line from Oklahoma to the Gulf of Mexico.

Frank M. Breene is special agent for the Oklahoma Corporation Commission in the enforcement of the commission's oil orders.

Hon. Christopher Heydrick, prominent oil lawyer, and pioneer oil map maker, dies at his home in Oil City, Pa., at the age of 74 years.

The Alice Katherine Oil Co. opens the Yale Pool with a 150-bbl. well on the Johnson farm, in Section 7-19-6, in Oklahoma.

Nearly 12,000,000 bbls. of oil is in producers' storage in the Cushing Field, Oklahoma. The field is producing 170,000 bbls. per day.

10 Years Ago

October 16, 1924

The tanker tender "Charlie White," named in honor of Charles T. White, secretary of the Standard Oil Co. of New Jersey, is launched in New York.

Mark C. Rogers, pioneer operator and refiner in the western Canada oil fields, dies at Lethbridge, Alberta.

Prairie Oil & Gas Co. resumes oil purchases on a 100 per cent basis. It has been paying for a portion of the oil run and storing the remainder at the operators' expense. Reason: Overproduction.

J. S. Sidwell, vice president and general manager of the Transcontinental Oil Co., resigns to go into business for himself. L. B. McCannon succeeds him.

DR. BLAINE B. WESCOTT, director of the Gulf Research Company of Pittsburgh, Pa., has been a visitor at the Gulf organization offices in Tulsa and Houston, Tex.

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JOHN MILLER, head of the lubricating oil sales division of the Mid-Continent Petroleum Corporation, has returned from an extensive tour of the southern states.

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DR. JOHN W. FINCH, director of the Bureau of Mines, made his first visit to the Bartlesville, Okla., experiment station last week, while on his tour of the bureau's stations.

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O. E. GARRETSON, formerly in the land department of the Prairie Oil & Gas Company of Wyoming, has been transferred to the land department of Sinclair Prairie Oil Company in Tulsa.

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ERNEST PRATT, district geologist in Kansas for the Shell Petroleum Corporation for several years, has resigned to engage in the oil business as an independent operator in Wichita, Kans.

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N. A. McCORD, of Foraker, Okla., who was formerly in the service of the Standard Oil Company at Aruba, in the Dutch West Indies and came home to recover from an injury, is returning to Aruba.

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L. E. STILES, assistant division manager of the Continental Oil Company's marketing department, Fort Worth, Tex., announces the arrival of a son, born in St. Josephs Hospital, that city.

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T. L. STROMBERGER, who joined the Union Oil Company in 1929, has been appointed assistant manager of advertising and publicity and will in addition to his new duties have supervision of editing the Union's mouthly bulletin.

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MAJ. E. E. ALDRIN, in charge of the aviation department of the Standard Oil Company (New Jersey), returned to New York last week from a trip of several weeks' duration to European points. Major Aldrin represented the Aeronautical Chamber of Commerce of America at the sessions of the International Air Transport Association held at The Hague, Holland.

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W. F. BOWMAN, chief geologist, Gulf Coast division, Tide Water Oil Company, was elected president of the Houston Geological Society at its annual election. He succeeds DR. MARCUS A. HANNAH, chief paleontologist of the Gulf Production Company. JOHN C. MILLER, chief geologist, South Texas division, the Texas Company, was elected vice president, and PHIL MARTIN, chief geologist, Houston Oil Company, secretary-treasurer.

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R. P. McLAUGHLIN, for a number of years California State Oil and Gas Supervisor and recently designated as one of three men to make recommendations to the Central Committee regarding an equitable allocation of production in the Kettleman North Dome Field, has been appointed general manager of the Burnham Exploration Company and will maintain headquarters in the Union Oil Building, in Los Angeles, Calif.

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E. E. KIRKPATRICK, who was vice president of Tom Slick, Inc., and head of the land department and manager of the Tulsa offices of the Slick and Urschel interests, was host to several hundred prominent oil men at a barbecue at the Verdigris Club near Tulsa last Saturday afternoon and evening. Kirk's invitation to the affair started out: "Dear Neighbor: I reckon as how I'm going to barbecue a dogie off my own Range and I'm askin' you to come along. Chuck will be ready in the Branding Pens at Verdigris Club at 5 o'clock P.M. Saturday, October 13. Come and git it."

Mr. Schell Was Born on an Oil Lease

It would be difficult to say just when Fred A. Schell, division superintendent for the Tide Water Oil Company, entered the oil business, for he was born on a lease in Clarion County, Pennsylvania, in 1884. His father, Frank V. Schell, was a pioneer oil man, and some of the son's earliest recollections are of minor tasks about the wells.

FRED A. SCHELL

At 16 young Fred was employed by the Forest Oil Company in the McDonald, Pa., Field. He remained with this company, later consolidated with the South Penn Oil Company, as pumper, roustabout and toolpusher till 1913. In that year he went to California and worked for the Union Oil Company in the wildcat development of Ventura County. When that was completed he returned to Pennsylvania and re-entered the employ of the South Penn Oil Company.

In 1917 Mr. Schell left his native state once more, this time to become a driller for the Tide Water Oil Company in the Osage country of Oklahoma. Later he was transferred to Eldorado, Kans. The call of the East drew him back to Pennsylvania again and he went to work deepening old wells for the South Penn. But another year found him in Desdemona, Tex., developing the holdings of the Choate Oil Company, this time to remain permanently in the Mid-Continent territory. When Choate sold its holdings Mr. Schell rejoined the Tide Water, first in Billings, Okla., and then in Wynona, Okla., where for four years he served as district superintendent. In January, 1926, he was transferred to the Tulsa office of the company, and he now resides in that city.

Mr. Schell in 1903 married Miss Clara Belle Boyles, of McDonald, Pa. Their son, Fred A. Schell, Jr., is a petroleum engineer for the Stanolind Oil & Gas Company in Wink, Tex.

EARL L. MILLER, with the Shell Oil Company in San Francisco, Calif., is in Washington, D. C., meeting with the marketing subcommittee of the Planning and Coordination Committee. Mr. Miller is a member of that subcommittee.

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PRESIDENT D. J. MORAN, of the Continental Oil Company, accompanied by WILLIAM EWING and F. D. BARTOW, partners in J. P. Morgan & Company, have been inspecting Texas properties of the company.

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W. L. CUPIT, formerly assistant chief clerk and warehouseman in the Thompsons district, for the Humble Oil & Refining Company, has been transferred to Trinity, Tex., and promoted to chief clerk and warehouseman in the Kittrell district. E. C. HALL, inventory clerk in the Thompsons district, has been promoted to assistant chief clerk and warehouseman of the Thompsons district, to replace Mr. Cupit.

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J. HOWARD MARSHALL, member of the Petroleum Administrative Board, has returned to Washington, D. C., after an absence of several months during which he spent much time on the West Coast assisting in forming and initiating the Pacific Coast Petroleum Agency Agreement. He has more recently been active in the East Texas area where he has helped in the start of the enforcement drive now going on.

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AT THE recent election for California District Oil and Gas Commissioners, W. C. WHALEY was elected in the first district; A. C. BUSH and WILLIAM WATKINS in the second district; and W. R. HARSHBARGER in the fifth district. EMIL KLUTH, C. V. WHITE, M. MEARS, C. A. LANGSTRAFF, ROY SMITH, L. E. FOUST, C. W. INMAN, and T. T. VAUGHN were re-elected to their respective positions in the districts which they represent.

W. N. DAVIS and M. E. FOSTER, of the Phillips Petroleum Company, Bartlesville, Okla., were in Washington, D. C., for a few days on business.

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BARNEY G. DAVIS, tool pusher for Prince Brothers in the Ward County, Texas, area, is reported recovering from a leg and body injury received when a pipe rack fell on him. He is in a Big Spring, Tex., hospital.

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R. T. DASHNER until October 1 production foreman in the Jal, N. Mex., district, for the Continental Oil Company, has resigned, returning to Oklahoma from Texon, Tex. A. R. ALLISON is succeeding Mr. Dashner.

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W. R. BOYD, P. M. MISKELL, C. B. WATSON, CHARLES BUERGER, and A. K. McLAUGHLIN, members of the Refinery Board of Review, met in Washington, D. C., to hear appeals from decisions of the district allocators. Mr. Boyd is chairman of the board.

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R. D. (DENNY) GRANT, of the Pennzoil Company, Oil City, Pa., spent several days in Washington, D. C., on business. He was joined in Washington by CHARLES L. SUHR, of Oil City, president of the company, and also president of the National Petroleum Association.

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M. G. ENSINGER, vice president and general manager of the Union Wire Rope Corporation, and HAL R. GRUBER, vice president and sales manager, are in Mexico calling on customers of their company in the oil-producing districts with SENOR ENRIQUE O. CHAPA, the company's sales representative in Mexico. Mr. Ensinger was the principal speaker at a meeting of Mexican oil men at the Imperial Hotel, Tampico, on Friday evening, October 5. He spoke on "Wire Rope—Its Uses and Abuses."

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E. M. SKEEHAN, vice president of the Barnsdall Oil Company, whose office is in Los Angeles, Calif., was in Tulsa last week. Mr. Skeehan formerly made his home in Tulsa and has many friends in the Oil Capitol.

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MR. and MRS. J. H. BOLING and MISS ERLINE BOLING have arrived in Tulsa from Los Angeles to visit with their son and brother, LONNIE J. BOLING. Mr. Boling was an oil man for many years in Tulsa before he located in California two years ago.

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H. J. STRUTH, district allocator from Houston, Tex., spent several days in Washington, D. C. He appeared before the Board of Review and attended the meetings of the district allocators and allocating agencies when the gasoline allocations for the month of November were set.

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BRYAN J. TODD, general manager of the Associated Motorists Petrol Company, Ltd., Wellington, New Zealand, and MRS. TODD, were in Tulsa during the week. They have visited Los Angeles, Calif., and Dallas, Tex., and are proceeding on a tour which will include Chicago, eastern points, London, England, and Moscow. Mr. Todd said his company is the largest distributor of gasoline in New Zealand.

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J. C. MARTIN, formerly located in the Gulf Coast division office, of the Humble Oil & Refining Company, has been transferred to Trinity, Tex., and promoted to assistant chief clerk and warehouseman for the Kittrell district. C. A. LIKES, assistant chief clerk and warehouseman at McCamey, Tex., has been transferred to Andrews, Tex., as assistant chief clerk and warehouseman for the Andrews district. T. E. HEARD, warehouse clerk at McCamey, has been promoted to assistant chief clerk and warehouseman to replace Mr. Likes.

MARKET RECORD OF OIL SECURITIES

Active Oil Stocks Listed on New York Stock Exchange

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1934 High	1934 Low	Week ended October 13 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	1933 High	1933 Low	1932 High	1932 Low	1931 High	1931 Low
55⅝	39	1,900	41⅛	39	40⅜	Amerada Corp.	774,875	N.P.	50eQ	7-31-34	47⅝	18½	22⅝	12	23	11¼
35¼	21½	4,400	24½	23	23¾	Atlantic Refining	2,673,834	$25	25eQ	9-15-34	82½	12⅝	21⅞	8⅝	23⅝	8⅝
10	5⅞	5,800	6⅜	6⅛	6¼	Barnsdall Corp. A ..	2,248,795	$5	....	5-11-31	11	3	7	3⅜	14½	4
19¼	6⅞	12,400	9⅜	8½	8⅞	Columbia Gas & Elec.	11,610,036	N.P.	12½eQ†	5-15-34	28½	9	21	4¼	45⅝	11⅝
14¼	7¼	15,500	8⅛	7⅝	7⅞	Consolidated Oil Corp.	14,218,835	N.P.	14e	10-31-34	15⅝	5	9	4	15⅞	4⅛
22¾	15¾	8,500	17⅜	16¾	17	Continental Oil of Delaware	4,738,593	$5	25e	10-31-34	19⅝	4⅞	9⅜	3⅝	12	5
23½	12	2,800	16⅛	15	15¾	General Asphalt	387,149	$10	....	6-15-32	27	4⅝	15½	4¾	47	9⅜
5⅝	2½	600	2¾	2⅝	2⅝	Houston Oil (new)	1,098,618	$25	....	10-17-30	7⅜	1⅞	5⅝	1⅛	14⅛	3
3⅜	1⅛	300	1⅛	1⅛	1⅛	Louisiana Oil Refining	1,302,158	N.P.	....	.....	4	⅝	2¼	½	4½	1
14¾	9⅛	1,100	10¾	10⅛	10¼	Mid-Continent Petroleum	1,857,912	N.P.	25e	11-15-34	16	3¾	8⅞	3⅜	16⅝	5
21¼	10	300	12½	12	12½	National Supply of Delaware	382,591	$25	....	5-15-31	28⅝	4	13	3½	10¼	5
15⅞	8½	3,500	10	9½	9½	Ohio Oil Co.	6,563,107	N.P.	15e	9-15-34	17⅝	4⅝	11	5	19½	5¼
8⅞	5½	200	5½	5½	5½	Pacific Western Oil	1,000,000	N.P.	25e‡	10-25-33	9½	3	8	3	15	2⅜
2½	⅝	No sales ..	..	..	..	Panhandle P. & R.	198,770	N.P.	....	.....	4¼	⅜	1¼	⅛	4¼	⅜
20¾	13⅝	13,500	14⅜	13⅝	14	Phillips Petroleum	4,154,687	N.P.	25e	9-1-34	18⅜	4⅜	8½	2	13⅝	4
16¾	8	3,600	9	8¼	9	Plymouth Oil Co.	990,261	$5	25eQ	9-29-34	17⅝	6⅜	12½	6	18	6
14⅞	6⅜	5,200	6⅞	6½	6⅞	Pure Oil	8,038,370	N.P.	....	9- 1-30	15⅜	2½	6½	2⅞	11⅞	3¼
39⅛	32⅛	1,600	33¾	32⅛	33¾	Royal Dutch N. Y. shares	432,224	$14	$1.35	7-31-34	39⅜	17⅝	23¾	12⅛	42⅜	13
39⅜	20¾	1,400	23¾	21	23¾	Seaboard Oil of Delaware	1,204,460	N.P.	15eQ§	9-15-34	43⅜	15	20⅜	6⅝	20⅜	5½
11½	6⅛	6,100	6½	6⅛	6½	Shell Union Oil	18,070,625	N.P.	....	6-30-30	11⅝	4	8¾	2½	10¼	2¼
89	57	200	61⅝	61⅝	61⅝	Shell Union Oil pfd.	400,000	$100	....	7- 1-31	61	28½	65¼	18	78	15
14⅜	7¼	27,200	14⅜	12⅞	13¼	Simms Petroleum	461,700	$10	80c	8- 1-34	12⅜	4⅞	7½	3¼	11	3½
11½	6	500	6½	6	6½	Skelly Oil	1,008,524	$25	....	12-15-30	9⅞	3	5¾	2½	12⅞	3
19⅞	12½	24,900	14	13¾	13⅝	Socony-Vacuum	31,019,694	$25	15eQ	9-15-34	17	6	12¼	5¼	21	8⅜
42⅞	26½	17,900	30¼	28⅞	29	Standard Oil of California	13,102,900	N.P.	25c	9-15-34	45	19½	31⅞	15⅛	51¾	23¼
32¾	24⅝	10,900	25¼	24⅝	24⅞	Standard Oil of Indiana	15,941,894	$25	25eQ	9-15-34	34	17	25⅛	13⅛	38⅛	13⅛
41	27	No sales ..	..	..	..	Standard Oil of Kansas	200,000	$10	50eQ	10-31-34	39⅞	12¾	16½	7	19	7¾
50¼	40⅝	24,100	43¾	42	42	Standard Oil of New Jersey	25,740,965	$25	50eSA	6-15-34	47½	22¾	37⅜	19⅞	52½	28
69¾	51½	2,500	69	67¾	69	Sun Oil	1,733,013	N.P.	25eQ	9-15-34	59	35	39⅞	24⅝	45¼	26⅜
29⅝	20	6,200	22	21½	21⅞	Texas Corp.	9,486,417	$25	25eQ	10- 1-34	30½	10⅝	18¼	9¼	36¼	9⅝
6½	2½	1,000	2¾	2½	2⅝	Texas Pacific Coal & Oil	850,703	$10	....	12-31-29	6½	1⅝	4	1½	6½	1⅝
14⅜	8¼	5,000	8⅞	8⅜	8⅜	Tide Water Associated	5,618,672	N.P.	....	2-16-31	11⅝	3½	5⅝	2	9	2¼
85½	64½	3,000	75	75	75	Tide Water Associated pfd.	666,524	$100	$1.50Q	10-10-34	65¼	23½	60	20	68	20¼
20½	11½	2,900	14½	13¾	14⅛	Union Oil of California	4,386,070	$25	25eQ	8-10-34	23⅝	8½	15⅝	8	26⅝	11
21¼	15⅝	1,800	21¼	20½	21¼	Union Tank Car	1,200,000	N.P.	30eQ	9- 1-34	22¾	10½	19¼	11⅜	25½	16
5¾	2½	1,000	3	2¾	2⅞	Wilcox Oil & Gas	424,839	$5	....	5-10-28	5½	2	8¾	2⅜	9⅝	3⅜

*Ex-dividend. †Payable in 5 per cent convertible preferred stock. ‡Initial dividend. §Plus extras.

Active Oil Stocks Listed on New York Curb

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1934 High	1934 Low	Week ended October 13 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	1933 High	1933 Low	1932 High	1932 Low	1931 High	1931 Low
38	26	200	32	32	32	Buckeye Pipe Line Co.	200,000	$50	75eQ	9-15-34	39¾	25	35	17½	56	30
5½	2⅜	1,900	3	2⅞	3	Carib Syndicate	579,000	25c	....	.....	7⅜	⅛	⅝	⅛	2⅜	¼
126½	115	50	125½	125½	125½	Chesebrough Mfg. Co.	120,000	$25	$1Q†	9-29-34	129	71	90	53	129½	75
4¼	1⅝	18,100	1⅞	1⅝	1⅝	Cities Service	37,804,394	N.P.	....	6- 1-32	6¼	1½	6⅞	1¼	20⅜	5
3¼	1	400	1¼	1⅛	1⅛	Colon Oil	2,200,000	N.P.	....	.....	4	⅛	1¼	⅛	3½	⅛
3⅞	1¼	200	1¼	1⅛	1⅛	Cosden Oil	399,687	$1	....	.....	3⅞	1⅜	2⅞	⅛	3⅜	⅜
14⅜	9⅝	3,200	13	12⅝	12⅞	Creole Petroleum	6,974,356	$5	....	.....	12	4¾	3⅛	1⅜	3⅞	1⅜
7½	4⅝	100	4⅞	4⅞	4⅞	Darby Petroleum	509,696	$5	25c	7-25-34	8	2⅛	7⅛	1⅝	2½	1⅜
2¼	1¼	No sales ..	..	..	..	Derby Oil & Refining	263,162	N.P.	....	.....	2¾	⅜	3	1	6	1½
37	30	No sales ..	..	..	..	Eureka Pipe Line	50,000	$100	$1Q	11- 1-34	41⅜	20	35	18	36	19
76¾	49¾	3,000	53⅝	50¼	52¾	Gulf Oil Corp.	4,538,101	$25	....	10- 1-31	62	24	44¾	23	75½	25⅜
46⅜	33½	3,500	40¼	38⅞	39¾	Humble Oil & Refining (new)	8,923,935	N.P.	25eQ	10- 1-34	105½	40	55	35⅝	72	44½
16	12⅝	13,200	16	15⅜	15⅞	Imperial Oil of Canada	28,857,152	N.P.	25eSA†‡	6- 1-34	15⅞	6⅛	10⅞	6⅛	18¼	7⅜
6⅞	4	100	4½	4½	4½	Indiana Pipe Line	300,000	$10	15eSA†	11-15-34	8	3⅛	7½	2⅜	21⅛	5⅛
30¾	19⅜	11,600	30¾	29½	30⅝	International Petroleum	14,247,088	N.P.	56eSA†‡	6- 1-34	23½	8⅞	12¼	8	15½	7⅜
4	2⅞	2,300	3⅜	3⅜	3⅜	Louisiana Land & Exp.	3,000,000	N.P.	....	.....	2¼	⅜	2½	½	2	⅛
5⅞	3½	100	3⅜	3⅜	3⅜	Lion Oil Refining	270,000	N.P.	....	10-27-30	9½	1¼	3½	⅞	6⅝	1⅛
8⅜	4½	3,400	4⅞	4⅝	4⅝	Lone Star Gas	5,382,723	N.P.	16eQ§	3-31-34	11⅞	4⅝	11	3⅝	29	5⅛
5½	4	700	4⅝	4⅝	4⅝	Mountain Producers	1,682,182	$10	15eQ	10- 1-34	6½	2½	4⅜	2⅛	5⅞	3
18⅛	13¼	700	14⅞	14⅜	14⅜	National Fuel Gas	3,810,183	N.P.	25eQ	10-15-34	20	10	14⅝	8	26½	9⅜
9½	7⅜	No sales ..	..	..	..	National Transit	509,000	$12.50	40eSA	6-15-34	10	3½	10½	6	17½	5
2½	1⅜	700	2¼	2⅛	2¼	New Bradford Oil	1,445,202	$5	10c	9-15-34	2⅛	⅛	⅞	⅛	1⅜	⅛
2¾	1	200	1¼	1¼	1¼	New Mexico and Arizona	1,000,000	$1	....	.....	1⅞	⅛	1¼	⅝	3	⅝
4¾	3	No sales ..	..	..	..	New York Transit	100,000	$5	15eSA	10-15-34	4⅞	3	9⅝	7½	14½	5⅜
7	4⅝	300	5¾	5¾	5¾	Northern Pipe Line	120,000	$10	25eSA	7- 2-34	6⅛	4¼	5½	3⅛	35½	20
2⅝	⅞	14,100	1⅞	1½	1⅝	Pantepec Oil	1,608,700	N.P.	....	.....	3⅜	⅛	⅝	1/16	2	⅜
3⅜	⅞	100	1⅛	1⅛	1⅛	Ryan Consolidated	296,931	N.P.	....	.....	4⅛	⅝	2⅛	⅜	3	⅜
7⅛	5½	1,600	6½	6¼	6½	Salt Creek Producers	1,496,859	$10	20eQ	8- 1-34	9¼	3½	5½	2⅞	7⅝	2⅜
26½	17½	500	22	21¼	21¼	South Penn Oil	1,200,000	$25	30eQ	9-29-34	22⅛	11	16½	9⅝	23⅞	9¼
5½	4	No sales ..	..	..	..	Southern Pipe Line	100,000	$10	15eSA	9- 1-34	6	2⅛	10	8⅜	17	7
47	41	No sales ..	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	$1Q	10- 1-34	43	24½	87	27	42½	25
17⅝	14⅝	1,200	15⅜	15⅜	15⅝	Standard Oil of Kentucky	2,606,983	$10	25eQ	9-15-34	19¼	8⅝	15⅞	8⅞	23⅝	12⅛
16⅞	9	300	9½	9⅛	9½	Standard Oil of Nebraska	190,822	$25	....	6-20-34	20½	11	19	10¾	36½	16
28½	14	No sales ..	..	..	..	Standard Oil of Ohio	753,740	$25	....	1- 3-33	41	15½	30⅛	15½	62½	23
2	1⅛	2,300	1¾	1	1⅛	Sunray Oil	1,162,840	$5	....	4-15-31	1½	¼	⅝	⅛	5¼	¼
11	4⅜	400	6	5⅝	6	Texon Oil & Land	936,028	N.P.	15eQ†	9-29-34	13⅝	6¼	10½	4½	12⅞	3½

*Ex-dividend. †Plus extras. ‡Payable in Canadian funds. §Payable in preferred stock.

Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

Central West Fields

(Continued from Page 57)

drilling No. 1 Leon Crawford farm, Lot 31, Olmstead Township, Cuyahoga County.

Richland County

In Richland County, Ohio Fuel Gas Co.'s No. 1-5,884 on the George Hammond farm, Section 16, Worthington Township, is a gas well at 2,438 feet. Same company is drilling No. 1-5,906 on the W. T. Ramsey farm, Section 17, same township.

In Summitt County, East Ohio Gas Co. has a rig for No. 4 on the Everette Bexler farm, Section 17, Green Township.

In Fairfield County, City Natural Gas Works' No. 2 B. E. Freisner, Section 6, Pleasants Township, is a gas well at 2,070 feet. Same company has a rig for No. 1 on the Mertz and Moyer farm, Section 14, same township. Same company is drilling No. 3 on the Charles Fauble farm, Lot 34, Berne Township. In Greenfield Township, same company has a rig for No. 1 John A. Friedley farm. In Rome Township it has a rig for No. 2 on the M. E. Bowman and others farm, Section 34.

In Knox County, Ohio Fuel Gas Co.'s No. 1-5,811 on the J. G. Fowler farm, in the third-quarter section, is a gas well at 2,608 feet. Upham Gas Co. is drilling No. 1 on the Iva M. Dowds farm, Section 17, Monroe Township. Lacknett and others' No. 3 on the Oliver Mills farm, Lot 4, Butler Township, is a gas well at 765 feet. In Brown Township, Upham Gas Co. is drilling No. 2 on the David E. Keck farm, Section 14, and Reed Brothers have a rig for No. 4 on the Blanch Reed farm, same section.

In Licking County, Blue Rock Oil Co.'s No. 6 on the Walter Hoyt farm, Section 17, Perry Township, produced 5 bbls. at 635 feet.

In Muskingum County, Mid-East Oil Co.'s No. 1 Benjamin F. Young farm, Section 17, Salt Creek Township, was dry at 4,144 feet. In Jackson Township, Pure Oil Co. is drilling No. 13 George Crawford farm, No. 2 Sam Huffman farm, Section 4, and No. 6 Lloyd McKee farm, Section 6. Fritz Oil & Gas Co. has a rig for No. 1 W. F. Swingle farm, Section 28, Brush Creek Township.

In Tuscarawas County Frank Walton and others are drilling No. 1 on the Joseph Dunlap farm, Lot 12, Rush Township.

In Stark County, McFarland and others' No. 1 Edward A. Frank farm, Section 12, Jackson Township, is a gas well at 4,399 feet. East Ohio Gas Co.'s No. 1 S. S. Kurtz, Jr., farm, Section 9, is a gas well at 4,513 feet. Brendel Producing Co.'s No. 1 M. E. Humbert farm, Section 14, is a gas well at 4,512 feet. East Ohio Gas Co. has a rig for No. 1 Leo Roush farm, Section 18, Plain Township.

Belmont County

In Belmont County, Barnesville Development Co. is drilling No. 2 on the Allen Bailey farm, Section 32, Goshen Township. Ohio Fuel Gas Co. is drilling No. 1-1,095 George Bright farm, Section 27, Warren Township.

In Guernsey County, William Larrick's No. 2 on the Joseph Miller farm, Section 5, Monroe Township, produced 23 bbls. initial. In Oxford Township, Oxford Oil & Gas Co.'s No. 1 on the George K. and Martha Smith farm, Section 35, was dry at 1,453 feet. George Jewell is drilling No. 2 on the Fannie and Nathan Bay farm, Section 35. Preston Oil Co. has a location for No. 1 Rhea R. Lent farm, Section 10, Millwood Township. In Willis Township, Jewell and others' No. 3 on the John Polasky farm, Section 2, is a gas well at 1,323 feet. Ohio Fuel Gas Co.'s No. 3-5,891 on the D. and H. Nesbitt farm, Lot 21, is a gas well at 1,359 feet. Same company's No. 1-5,901 Bert H. Foraker farm, in Section 21, Willis Township, is a gas well at 1,420 feet.

In Vinton County, Ohio Fuel Gas Co.'s No. 1-5,875 on the Hollace C. Remy farm, Section 32, Elk Township, is a gas well at 2,900 feet.

Hall Gas Co.'s No. 2 H. and E. Snowden farm, in the two-thirds section, is a gas well. In Lebanon Township, Houston and others' No. 1 on the Nichols Ours heirs, Section 30, is a gas well at 1,998 feet. O. D. Jones is drilling No. 1 Mary A. Knowles farm, Section 13, same township.

INDIANA

In the Indiana Field, Patoka Township, Gibson County, Nelson, Douglas and others' No. 2 on the Mary W. Schultz farm, SW SW Section 9, produced an initial of 10 bbls. In Center Township, Midwest Development Corp. is drilling on the Henry Erdell farm, SW SW Section 23. In Washington Township, Big Four Oil & Gas Co. is drilling No. 2 Charles White farm, SE NW Section 18. Gilbert Schoultz is drilling No. 1 on the Homer Davidson farm, in Donation 107-118.

The Lexcastle Oil & Gas Corp. is drilling No. 2 on the Nettie Rohrscheib farm, SE SW Section 31, Clay Township, Pike County. In Washington Township A. E. Davis is drilling No. 2 Frank Aurand farm, NE NE Section 19. In Madison Township, Bruner & Abbott abandoned Nos. 5 and 7 on the D. M. Shawhan farm, and are drilling No. 12 also on the Shawhan heirs farm. In Daviess County the Southwestern Gas Corp. is drilling No. 2 on the Henrietta Geslin farm, SE Section 9, Harrison Township. In Warrick County, W. C. McBride is drilling No. 1 Emily Ricketts farm, Section 6, Hart Township.

In Spencer County, F. F. Seitz is drilling No. 1 on the F. N. and G. A. Grass farm, NE SE Section 11, Hupp Township. Ohio Oil Co. is drilling No. 1 on the S. M. and L. Varner farm, SE NW Section 19, same township. W. A. Sage, is drilling No. 1 on the George Racine farm, NW NW Section 4, same township. I. A. Polhamus is drilling No. 2 on the William Grass farm, same township.

In Hancock County the Knightstown Natural Gas Co. is drilling No. 3 Wallace Weber farm, Section 22, Jackson Township. In Greene County Robert Daily is drilling No. 1 on the William Dailey farm, SE SE Section 10, Richland Township.

In Perry County Anderson Creek Oil & Gas Co.'s No. 1 on the Frank Delassee farm, NE NE Section 25, Clark Township, was a dry hole. Ohio Oil Co.'s No. 5 George K. Beard farm, SW SW SW Section 19, same township, is a dry hole. Christ Zoercher is drilling No. 1 on the Mary Van Winkle farm, SE NE Section 36, same township. In Troy Township, Auburn Stinson is drilling No. 1 on the Rosalie Richardt farm, NW NW Section 12.

In Dubois County, F. L. Damron is drilling No. 1 on the J. Eck farm, NW NW Section 5, Harbison Township.

In Posey County, Adams Corner Oil Co.'s No. 1 Adam Will farm, SW NE Section 2, Robinson Township, is dry. B. F. Wireback is drilling No. 1 C. C. Winterheimer farm, Section 22, same township.

In Vanderburg County, John L. Drake is drilling No. 1 John McCutcheon farm, SE SE Section 36, Scott Township. Charles E. Wyman is drilling No. 1 Offa Chastiam farm, NE NE Section 12, Vernon Township. W. C. Coffing and C. W. Dice are drilling No. 1 on the Hettie Giltner farm, Section 9, Busseron Township, Knox County.

In Newton County, Nelson Zumbaugh is drilling No. 1 on the Thomas Watkins farm, SE NE Section 22, Colfax Township.

KENTUCKY

Fourteen completions were reported in the Kentucky Field, with an initial of 513 bbls., six dry holes, one gas well and seven oil wells.

In Ohio County, Petroleum Co.'s No. 5 on the Sally Jones farm, in the Oak Station Pool, produced 100 bbls., and No. 6 was dry. Vickers and others' No. 6 on the Sally Jones farm, same pool, produced 145 bbls. initial. Cumberland Petroleum Co.'s No. 9, Rolla Richards farm, same pool, had an initial of 50 bbls. George McGinley and others' No. 1 F. Muffett farm, produced 8 bbls. initial. W. E. Hupp and others' No. 27 on the J. W. O'Dell farm produced 100 bbls. initial. Penn-Indiana Oil Co.'s No. 1 on the Landham heirs farm, near Basham School, is a gas well. Carpenter and others' No. 1 Frank Petty farm, came in a duster. W. E. Hupp and others' No. 1 on the K. C. Rowe farm, same county, is a dry hole and J. C. Miller hit a dry hole in No. 1 on the Wavey Sanders farm, same county.

In Hancock County Joseph B. Mayers' No. 3 in the Grove Pool lease produced 60 bbls. initial.

In McLean County Cameron & Thompson's No. 4 on the Will Ashton farm in the Calhoun Field, and J. C. Miller and others' No. 1 Hardin heirs farm, same pool, was dry at 3,200 feet.

TENNESSEE

Writing from Jackson, Tenn., C. M. Pierce says Steinberger & Pierce's test on the Montgomery farm in Decatur County, Tennessee, topped an oil bearing limestone at 1,525 feet with a showing of oil through 1,400 feet of water. Preparations were being made to acidize the lime, which, Mr. Pierce says, is in the Ordovician. The owners are Paul Steinberger and C. M. Pierce.

E. R. Henderson lost the hole in his No. 1 Jarrett in Haywood County. The drill stem stuck at 2,200 feet and the rig was skidded 60 feet and a new hole started.

Sudsberry and others are shut down at 350 feet in a cable tool test in Dyer County.

A machine is being moved in on a location in Hardeman County by a group from Texas and Oklahoma.

It is reported three wells are to be started in Madison and Haywood Counties within the next 60 days.

The records show that over 300,000 acres of land have been leased for oil and gas in western Tennessee.

Lighter Lubricating Oils Recommended for Winter Use in Modern Cars

The coming of cold weather presents the annual opportunity for service men to profit from the winter conditioning of motor cars, strengthen his position among his present customers, and attract new customers.

Cooling system, battery, and lubrication work always has been solicited in winter conditioning specials with good results on the profit side; but many service operators have failed to do the job so that the owner can go through the winter enjoying the same performance his car gave during the summer months.

Under the direction of L. K. Marshall, General Parts and Service Manager, of the Pontiac Motor Co., a thorough study of winter conditioning of motor cars has been completed.

In the field of engine lubrication, the "W" grades of lubricating oil were investigated. These light oils are finding increased favor in winter use. The recommendation of 10 W as an engine oil follows the experience of Pontiac Motors in pioneering "W" oils during the winter of 1933-1934.

For cold weather, with temperatures from 32° F. to zero, 10 W with zero pour test is recommended.

For extreme cold weather, temperature below zero, 10 W plus 10 per cent kerosene is recommended.

The recommendation of 10 W as an engine oil follows the experience of Pontiac Motors in pioneering "W" oils during the winter of 1933 and 1934. These new oils, namely 10 W and 20 W have excellent flow characteristics at extremely low temperatures due to their low viscosity as compared to the S.A.E. classification oils. The S.A.E. viscosity classification is made by testing oils at a temperature of 130° F. while "W" oils are tested at 0° F. This more nearly approaches the temperatures at which cold engines are started in the winter. The decidedly advantageous viscosity of winter or "W" oils at low temperatures might lead to the erroneous opinion that they would break down at crankcase operating temperatures. Tests at operating temperatures have proven that the difference in viscosity between S.A.E. 20 and 10 W does not vary widely. In support of this we can look to viscosity tests made on S.A.E. 20 and 10 W at two temperatures.

The first test was taken at 60° F. and the readings were 3,000 seconds for the S.A.E. 20 and 120 seconds for the 10 W. At this temperature the S.A.E. 20 had internal friction, or resistance to flow, 25 times greater than the 10 W.

The second test was made at crankcase temperature of 250° F. At this temperature the S.A.E. 20 reading was 51 seconds as against 34 seconds for the 10 W. At operating temperatures the difference in internal friction or resistance to flow was greatly reduced being only 1.5 as compared to 25.

A heavy oil having 25 times the internal friction of a light oil will certainly offer more friction in the bearings of an engine than the light oil on a cold start. When the engine warms up to operating temperature the two oils have nearly the same viscosity characteristics.

The cranking effort required on a cold start very largely determines the ease of starting. A light oil of "W" classification requires less cranking effort thus increasing the probability of a quick cold start. The common practice of the average owner of racing a cold engine during warm-up period tends to give excessive wear when heavy lubricants are used. The greater fluidity of the light oil insures less wear by allowing a more thorough lubrication of the engine parts during the warm-up period.

High speeds and resulting high temperatures are amply cared for by "W" oils. In comparison "W" oils will give better lubrication over the entire temperature range, increasing gasoline mileage, give faster acceleration and raise top speed.

In the later model cars — 1933 and 1934 — having closer piston fits and quicker warm-up, crankcase dilution does not form as rapidly as on cars of older designs, therefore with the use of "W" oils alone and with kerosene, it is desirable to turn the crankcase ventilator inlet to cut down losses of lightend vapors through the outlet side. This applies on 1933 and earlier models only, as the 1934 ventilator has a small trap door built in the ventilator which opens as the air pressure from the fan increases—thus reducing the crankcase pressure at high speeds.

The factory recommends turning the inlet on 1933 and earlier models counterclockwise one-quarter turn. The small amount of dilution introduced by this change very nearly offsets the light end losses through the outlet maintaining a balance favorable for winter operation.

Factory recommended oils make it easier for the battery, starter and ignition to function in cold weather, and assures the customer a more satisfactory operation.

AUTO MAKERS CHANGE NAME

Members of the Automobile Manufacturers Association, formerly the National Automobile Chamber of Commerce, produced 113,316 units in September, according to an estimate released by Alfred Reeves, vice president.

At the same time, Mr. Reeves announced that the change in the organization's name from the National Automobile Chamber of Commerce to the Automobile Manufacturers Association has been made effective.

On the basis of the association's esti-

mate, the September output was 32 per cent under August and 23 per cent under the output for the corresponding month last year.

Nine months' production of association members was estimated at 1,752,460, an increase of 34 per cent over the output for the same period in 1933, and is 17 per cent more than the output for all of last year.

The association's report includes the operations of all but one major manufacturer in the United States. The report is summarized below:

September, 1934	113,316
August, 1934	166,321
September, 1933	147,800
9 months, 1934	1,752,460
9 months, 1933	1,503,329

Kansas Wildcats

(Continued from Page 62)

Privett D.'g. Co.'s No. 1 Crotts, NE NW NE Sec. 27-26-10w.
T.D. 1,865 ft.; fishing.

RICE COUNTY

Darby Pet. Co. et al's No. 1 Taylor, NW SE SW Sec. 25-19-8w.
Drlg. 3,455 ft.

Deitrick et al's No. 1 Fitzpatrick, C NE NE Sec. 30-21-8w.
H.F.W. 3,625-33 ft.; S.D.

Foraker, Nickerson et al's No. 1 Lyon, SE NW Sec. 27-20-8w.
Spudding.

Marathon Oil Co.'s No. 1 Kline, SW SE Sec. 19-14-24w.
Set. 10-in. 2,466 ft.; drlg. 2,755 ft.

Robberson et al's No. 1 Johnson, NW NW SW Sec. 22-19-8w.
Old well deepening; T.D. 3,591 ft.; tools stuck; abd.

Stark & Wells' No. 1 Smith, NW cor. Sec. 30-19-8w.
Location.

Twin Drlg. Co. et al's No. 1 Reifs, SW NW SW Sec. 13-17-9w.
Rig.

Langston et al's No. 1 Markle, NE SW Sec 1-20-9w.
3,000,000 ft. gas at 2,883-35 ft.; S.D. for orders.

Yingling et al's No. 1 Maupin, NW SW SW Sec. 1-18-8w.
T.D. 2,620 ft.; fishing for tools.

ROOKS COUNTY

Stearns & Streeter's No. 1 Meyers, NE NW NW Sec. 24-9-16w.
Rigged up.

RUSH COUNTY

Corbett, Barbour et al's No. 1 Schmidt, SW SW SE Sec. 10-17-16w.
Drlg. 440 ft.

RUSSELL COUNTY

Blair et al's No. 1 Fiak, SW NW SE Sec. 16-14-14w.
Rigging up.

Eldorado Ref. Co.'s No. 1 Stratman, SW SE SE Sec. 32-14-11w.
T.D. 2,220 ft.; running 8-in. csg.

Tom Palmer et al's No. 1 Herbel, NW SW Sec. 4-12-11w.
Drlg. 1,555 ft.

SCOTT COUNTY

Atlantic Oil Prod. Co.'s No. 1 Vanimaa, C SE NE Sec. 15-20-33w.
T.D. 4,014 ft.; will run 10-in. csg.

SEDGWICK COUNTY

Aladdin Pet. Co. et al's No. 1 D. Lauck, SE NE NW Sec. 21-28-2.
Building rig.

Allison & Fitzwilliams et al's No. 1 Struthers, NE SW Sec. 34-28-2w.
Drlg. 1,072 ft.

Jones, Kirk et al's No. 1 McQuillan, NE NW NE Section 21-29-2w.
Chat 2,618 ft.; T.D. 2,730 ft.; fishing.

Lee Keller et al's No. 1 Russell, SW SW NW Sec. 16-29-2.
Cellar.

D. R. Lauck et al's No. 1 Roy, SE SW Sec. 24-29-1w.
T.D. 2,503 ft.; fishing.

Syndicate O. & G. Co. et al's No. 1 Ratzlaff, NE NW NW Sec. 29-26-2.
Rigged up and S.D.

Trees Oil, Derby Oil et al's No. 1 McMinn, NW SW NE Sec. 26-26-1e.
H.F.W., 2,430 ft.; abd.

SUMNER COUNTY

Wentz and Continental's No. 1 Small, NW SW Sec. 5-33-4w.
Wilcox 4,655 ft.; drlg. 4,690 ft.

Wentz et al's No. 1 Horsley, CSL SW SW SW Sec. 18-35-1.
Drlg. 2,785 ft.

TREGO COUNTY

Marathon Oil Co.'s No. 1 Kline, SW SE Sec. 19-14-24w.
T.D. 4,002 ft.; U.R. 8-in. csg.

WASHINGTON COUNTY

Rose Oil Co. et al's No. 1 Penwell, NE NW SE NE Sec. 16-3-2 (O.W.D.D.).
Old T.D. 1,720 ft.; R.U. and S.D.

WOODSON COUNTY

Schwartz et al's No. 1 Collins, SW NW NE Sec. 30-23-14.
Drlg. 610 ft.

Gulf Coast Wildcats

(Continued from Page 60)

Yount Lee Oil Co.'s No. 27 Chambers Co. 440 ft. W of No. 24 and in line with Nos. 24 and 21.
Derrick.

Yount Lee Oil Co.'s No. 28 Chambers County, 50 ft. N & line, direct offset to Sun's No. 10 Chambers County, Wm. Bloodgood Sur.
Derrick.

Yount Lee Oil Co.'s No. 9 Phillips, 100 ft. W of No. 8.
Reaming to bottom, 2,224 ft.

BIG CREEK—FORT BEND

Edwards Drlg. Co.'s No. 2 Hausler, 500 ft. SW from No. 1 and 100 ft. from SE line of 103.5-acre tract, Barnabas Wickson Sur.
Digging cellar.

BLUE RIDGE—FORT BEND COUNTY

Millis Bennett Prod. Co.'s No. 1 Luscher, 1,950 ft. S and 750 ft. E of westerly NW cor. 500-ac. tract, Thos. Hebermaches Sur.
Drlg. shale 5,189 ft.

BOLING—FORT BEND COUNTY

Allied Minerals, Inc.'s No. 1 E. C. Farmer, James Scott League, 750 ft. SE of NW line and 150 ft. SW of NE line of Gulf Prod. Co.'s E. C. Farmer 50-ac. tract.
Derrick.

Irwin Larsen et al's No. 1 J. R. Farmer, 100 ft. NW and 100 ft. SW from E cor. of 125-acre lease, James Scott Sur.
Location.

THOMPSON—FORT BEND COUNTY

Gulf Prod. Co.'s No. 5 Hammerstram, 2,315 ft. E along S line of lease from SW cor. and 300 ft. N at right angles, Samuel Kennedy Sur.
T.D. 5,310 ft.; I.P. 600 bbls. per day; comp.

Gulf Prod. Co.'s No. 6 Hammerstram, 330 ft. from S line, 330 ft. from N line of lease, Kennedy Sur.
Drlg. 900 ft.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 41 Moore, 2,373 ft. S along W line from NW cor. of James Frazier Sur., and 2,154 ft. at R/A.
Drlg. lime 3,228 ft.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 40 Cade, 420 ft. NW of No. 2-B, 360 ft. from E line of lease and in line with No. 39 and No. 2-B, Fitzsimmons Sur.
T.D. 6,699 ft.; heaving shale.

Yount Lee Oil Co.'s No. 42 Cade, K. Fitzsimmons Sur., half way between Nos. 36 and 38 and 150 ft. E at right angles.
Rig up.

Yount Lee Oil Co.'s No. 22 Smith.
No report.

Yount Lee Oil Co.'s No. 1 Mace Stewart, Martin Dunman Sur.
Drlg. shale 4,624 ft.

BATSON—HARDIN COUNTY

John A. Deering et al's No. 1 Hooks, Willis Donoho Sur., S extension test.
Drlg. shale 4,517 ft.

ARRIOLA—HARDIN COUNTY

Houston Oil Co.'s No. 4-X Arriola fee, 400 ft. E of No. 3-X.
Drlg. sand and boulders at 1,912 ft.

Republic-Houston Oil Co.'s No. 8 fee.
T.D. 5,040 ft.; drlg. plug.

SARATOGA—HARDIN COUNTY

Mines Bros.' No. 1 Coswell.
Swabbing; T.D. 2,322 ft.

SOUR LAKE—HARDIN COUNTY

Alpha Pet. Co.'s No. 2 Weiss, E flank of dome.
Drlg. shale 5,212 ft.

Sun Oil Co.'s No. 3 Bernard Corp., 150 ft. from N and W lines of Lot 11, E.T.&B. Sur., Sec. 69.
Drlg. shale 4,600 ft.

Texas Co.'s No. 312 T. T. Co. fee, 300 ft. N and 200 ft. E of No. 302.
Swabbing 1,805 ft; 7-in. csg. 1,775 ft.

GOOSE CREEK—HARRIS COUNTY

Kerring's No. 1 Williams, 150 ft. from SE cor. and 55 ft. NE of Hybush's No. 3, in W. Scott upper league.
Cellar.

Humble O. & R. Co.'s No. 80 Simms-Smith, Scott Lower League, 1,000 ft. E of the most westerly W line, and 300 ft. N of the most northerly S line.
Drlg. shale 6,238 ft.

FIEZCE JUNCTION—HARRIS COUNTY

A. & P. Prod. Co.'s No. 8 Whitehead, 150 ft. S of No. 5; 50 ft. from E line of lease, J. Hamilton Sur.
Drlg. plug 2,089 ft.

Benedum & Trees' No. 1 W. J. Settegast, 2,629 ft. from S line of Sur., and 100 ft. from E line of tract in the J. Kopman Sur.
No report.

Gulf Prod. Co.'s No. 10 H. C. Cain, 899 ft. S and 290 ft. E of NW cor. of lease and 217 ft. N of No. 9, J. Hamilton Sur No. 879 (workover).
Drlg. sand 6,660 ft.

Rio Bravo Oil Corp.'s No. 9-A Settegast, 1,575 ft. N line, 350 ft. E line NE cor. "A" lease, J. A. Kopman Sur.
T.D. 4,510 ft.; standing.

MIKAWA—HARRIS COUNTY

Danciger Oil & Ref. Co.'s No. 2 Minester, 150 ft. of N line and 55.9 ft. of E line of lease, Lot 253, Wm. Lovett Sur.
Drlg. shale 4,695 ft.

West Prod. Co.'s No. 1 Erin, C of Lot 17, Erin Gardens Subd., F. J. Rothaas Sur.
Drlg. green shale 4,957 ft.

TOMBALL—HARRIS COUNTY

Amerada Pet. Corp.'s No. 2 Ashley, Joseph House Sur.
T.D. 5,594 ft.; I.P. 189 bbls. in 8 hrs.; 79,500 ft. gas; ¼-in. choke; tubing pressure 1,050 lbs.; csg. pressure 1,500 lbs.

Amerada Pet. Corp.'s No. 6 Otto-Rudel, 562 ft. from S line, 1,539 ft. from E line on 59-ac. tract and 128.59-ac. lease in Joseph House Sur.
T.D. 5,585 ft.; set 2¼-in. csg. at 5,580 ft.; flowed 25⅛ bbls. per hr.; ¼-in. choke; csg. pressure 2,000 lbs.; tubing pressure 950 lbs.

Humble Oil & Ref. Co.'s No. 5-B Hope, 1,900 ft. from S line and 466 ft. from W line of "B" lease, A. Senchall Sur., Abst. 752.
Location.

Humble Oil & Ref. Co.'s No. 1 J. Wright, 315 ft. from SE line, 315 ft. from SW line of lease, J. House Sur.
Sand 4,596 ft.; drlg. plugs.

Humble Oil & Ref. Co.'s No. 2 J. Heidenreith, 466 ft. S of most S line of cemetery and 572 ft. from E line of tract, C. N. Pillot Sur.
Drlg. shale 5,438 ft.

Texas Co.'s No. 4 Hirsch, 943 ft. N and 466 ft. W of SE cor. of Wm. Hirsch Sur.
T.D. 5,610 ft.; I.P. 320 bbls. per day; ¼-in. choke.

KITTRELL-HOUSTON AND WALKER COUNTIES

Ben G. Barnett's No. 1 W. A. Reynolds, 330 ft. out of NW cor. of the NW 20 acres of the S 93 acres of Denton & Marshall lease, L. R. Clapp Sur.
Location.

Boone Bros.' No. 1-A Texas Ling Leaf Co., 330 ft. from N and W lines of Texas Long Leaf Lbr. Co.'s 379-acre tract, Geo. Kellman Sur.
Drlg. water well.

Boone Bros.' No. 2 Trinity State Bank, 660 ft. SE of NE, Charles McEllis Sur.
Drlg. 1,860 ft.

Crown Central Pet. Corp.'s No. 1 Texas Long Leaf Lbr. Co. and Thompson Bros., 150 ft. from W line, 150 ft. from N line of 40-ac. tract in J. S. Estheridge Sur., Abst. 299.
Location.

Eastern Texas Ref. Co.'s No. 1 Texas Long Leaf Lbr. Co., F. Willis Sur., 1½ miles SW of discovery well.
Abd. 2,525 ft.

Dick Hooper's No. 1 Mangum, Charles McEllis Sur. No. A-382, due S of discovery well.
S.D., 2,127 ft.

Humble O. & R. Co.'s No. 1 E. T. Shaw, 320 ft. from NE line and 320 ft. from SE line of E. T. Shaw 100-ac. tract, Chas. McEllis Sur.
T.D. 2,077 ft.; I.P. 31 bbls. per hr.; ¼-in. choke.

Humble O. & R. Co.'s No. 2 Shaw, 320 ft. from SE line of lease and 660 ft. SW of No. 1 Charles McEllis Sur.
Cmtd. surface csg.; T.D. 290 ft.

Humble O. & R. Co.'s No. 1 Texas Long Leaf Lbr. Co., 320 ft. from SW line and 320 ft. from SE line of Texas Long Leaf Lbr. Co., 696-ac. tract, C. C. McEllis Sur.
Coring sandy shale 2,805 ft.

Humble O. & R. Co.'s No. 2 Texas Long Leaf Lbr. Co., 330 ft. SW of NE line, 660 ft. SE of No. 3, Chas. McEllis Sur., Abst. 382.
Location.

Humble O. & R. Co.'s No. 3 Texas Long Leaf Lbr. Co., 330 ft. SE of NW line, 330 ft. SW of NE line, and 660 ft. NW of No. 2, Chas. McEllis Sur.
Location.

Lion Oil & Ref. Co.'s No. 1 Stokes Heirs, 330 ft. SW of NE line and 330 ft. NW of SE line of the N 58 acres of 276-acre tract, J. Callahan Sur.
Cmtd. surface csg.

Lacy & Miller's No. 1 J. A. Hamner, 330 ft. from E line of lease, Wm. Dillard Sur.
Drlg. 1,660 ft.

Lawrence & Flannery's No. 1 Texas Long Leaf Lbr. Co., 355 ft. from NW line and 150 ft. from SW line of 30-ac. lease, Mary Milsap Sur.
Abd. 2,136 ft.

Trinity Dev. Co.'s No. 1 G. A. Knox, 1,000 ft. from SE line and 500 ft. from SW line of Wm. Prissick Sur.
Rig up.

VANDERBILT—JACKSON COUNTY

Imperator Oil Co.'s No. 1 Dutton, S C of Lot No. 11, Blk. 25, 450 ft. S of R.R. and 1,350 ft. W line of townsite, Ray Musquis Sur.
Rigged up and S.D.

Turman Oil Co.'s No. 1 T. H. Miller, 150 ft. each way out of E 50-ac. of Miller 100-ac. tract in Ray Musquis Sur.
Rig up.

BIG HILL—JEFFERSON COUNTY

Yount Lee Oil Co.'s No. 1-A Pipkin, 2,640 ft. S and 2,640 ft. W of NE cor. of survey.
Rig up.

FANNETT—JEFFERSON COUNTY

Gulf Prod. Co.'s No. 15 Thomas, 300 ft. W of Gulf's No. 7 Burrell.
Drlg. cap rock 1,995 ft.

CLEVELAND—LIBERTY COUNTY

Gulf Prod. Co.'s No. 6-C Kirby, 2,796 ft. along N line of John Pleasants Sur. from NE cor. James Eldridge Sur. and 317 ft. E at right angles.
Drlg. sand 5,598 ft.

ESPERSON—LIBERTY COUNTY

General Crude Oil Co.'s No. 14 Moores Bluff, 1,675 ft. S, 10 deg. E of No. 10.
T.D. 3,561 ft.; reaming down at 3,480 ft.

General Crude Oil Co.'s No. 9 Davis, 1,200 ft. each way from S and E lines of lease in D. Kokernut Sur.
Coring sandy shale at 5,015 ft.

HANKAMER—LIBERTY COUNTY

George Devore et al's No. 1 R. E. Exell, 175 ft. S of Gulf's No. 1 and 165 ft. from E line of 175-ac. lease in Levi Barrow Sur.
T.D. 2,617 ft.; testing through ¾-in. choke.

HULL—LIBERTY COUNTY

G. R. Brown and S. F. Bashara's No. 1 David Hannah, Jesse Devore league, 100 ft. S line, 150 ft. E line, 42-ac. Gulf tract.
Derrick.

SOUTH LIBERTY—LIBERTY COUNTY

Humble O. & R. Co.'s No. 10 Welder, Duncan Sur., 400 ft. S of No. 9.
T.D. 4,996 ft.; I.P. 137 bbls. per day; ¾-in. choke; comp.

BUCKEYE—MATAGORDA COUNTY

United North & South Dev. Co.'s No. 1 Unit 4, Buckeye Farm, J. C. Keller league, 214 ft. N line and 202 ft. E line of lease.
T.D. 7,881 ft.; P.B. 7,870 ft.; S.D.

United North & South Dev. Co.'s No. 1 Plotner, 1,310 ft. SE No. 1 Stoddard and 196 ft. W of right of way S.T.L.&B.M.Ry. Sur.
Prepare to test 7,910 ft.

United North & South Dev. Co.'s No. 1 Unit No. 56, 350 ft. N and 300 ft. W of SE cor. of Unit No. 56.
T.D. 7,955 ft.; P.B. to 7,912 ft.; prepare to test.

MARKHAM—MATAGORDA COUNTY

Hawkins Oil Co.'s No. 1 Hawks fee, 1,150 ft. from N line and 1,650 ft. from E line of 10-ac. lease.
T.D. 600 ft.; derrick down.

Powers Prod. Co.'s No. 4 Myers, in line with wells Nos. 1 and 3, being 250 ft. E of No. 3.
Derrick down.

VAN VLECK—MATAGORDA COUNTY

Skelly Oil Co.'s No. 3 F. G. Cobb, 1,185 ft. E of W line and 2,515 ft. N of S line of F. G. Cobb lease in Marie Cummings Sur.
T.D. 7,073 ft.; est. 200 bbls. per day.

CONROE—MONTGOMERY COUNTY

Humble O. & R. Co.'s No. 1 Dodson, 250 ft. from W line, 765 ft. N of No. 1, W.C.R.R. Sur.
Drlg. shale 5,157 ft.

Humble O. & R. Co.'s No. 1 Madeley State Land, Ransom Horne Sur., 150 ft. N offset No. 28 Madeley.
T.D. 5,121 ft.; I.P. 27 bbls. per hr.; ¼-in. choke; comp.

Strake Pet., Inc.'s No. 2 Schaffe, 300 ft. from E line, 467 ft. from S line, C. R. Stewart Sur.
Cmtd. surface csg.

Strake Pet., Inc.'s No. 3-B Dean, 720.5 ft. N of No. 2-B and 500 ft. S of the N line of lease, W. C. C. Lynch Sur.
Abd. 4,826 ft.

ORANGE—ORANGE COUNTY

Trio Oil Co.'s No. 1 D. S. Comier, 60 ft. W of E line and 30 ft. S of N line of 6.53-ac. tract in W. M. Dyson Sur.
Prepare to spud.

POT NECHES—ORANGE COUNTY

Texas Co.'s No. 6 Kuhn, 150 ft. E, 150 ft. N of SE cor. of Mary Hall Sur.
Rig up.

Texas Co.'s No. 8 Kuhn, 1,320 ft. N and 350 ft. E of SE cor. of Mary E. Hall Sur. No. 2 in T. J. Notgrass Sur.
Drlg. shale 5,927 ft.

Texas Co.'s No. 9 Kuhn, 990 ft. N and W of SE cor. of Mary E. Hall Sur. No. 2.
Drlg. shale 4,540 ft.

LIVINGSTON—POLK COUNTY

T. D. Humphries' No. 1 J. C. Whitfforth, Block H.
Derrick.

Sun Oil Co.'s No. 1 Pratt, A. Viesca Sur., 330 ft. N line and 330 ft. E line of loan.
Tested S.W. on D.S. test; T.D. 4,304 ft.

Smith & McDannald's No. 1 Davis & Holmes, 1,486 ft. from N line, 330 ft. from W line of 40-ac., A. Viesca Sur.
Abd. 4,355 ft.

GRETA—REFUGIO COUNTY

Atlantic and Stanolind's No. 7-G O'Brien.
Derrick.

Hewitt & Daugherty's No. 12 Lambert.
Rigging up.

Humble Oil & Ref. Co.'s No. 8 F. W. V. Heard, 1,400 ft. from E line, 1,334 ft. from N line of 327-ac. lease in Creek Sur.
T.D. 4,382 ft.; I.P. 550 bbls. per day; comp. ¾-in. choke.

Humble Oil & Ref. Co.'s No. 9 Fannie Heard, 933 ft. E of No. 7, 1,350 ft. S of No. 8.
Drlg. sand 4,380 ft.; cmtd. 7-in. csg.

Humble Oil & Ref. Co.'s No. 12 J. F. B. Heard, 2,251 ft. from S line, 2,543 ft. from W line of lease.
T.D. 4,383 ft.; I.P. 765 bbls. per day; ¾-in. choke.

Humble O. & R. Co.'s No. 13 J. F. B. Heard, 933 ft. S of No. 11, 933 ft. E of No. 4.
Drlg. sand 4,380 ft.

Stanolind O. & G. Co.'s No. 4-A O'Brien, 1,000 ft. from N line, 800 ft. from S line of 79.8-ac. lease, Peoples Sur.
Drlg. 1,100 ft.

Stanolind O. & G. Co.'s No. 8 J. M. O'Brien, Peoples Sur.
Moving in rig.

United Prod. Co.'s No. 14 Fox (D.D.), 466 ft. from N line of 846-ac. tract and L. 660 ft. W of No. 11, Wm. Hews and L. Brown Sur.
T.D. 3,500 ft.; comp.; no gauge; 1,540 lbs. csg. pressure; 1,190 lbs. tubing pressure; ¼-in. choke.

United Prod. Co.'s No. 10 M. F. Lambert, Charles Hardwick Sur., 466 ft. from S line, 506 ft. from E or W line of Blk. 12.
T.D. 3,496 ft.; put on gas lift.

United Prod. Co.'s No. 11 M. F. Lambert, E. W. Hardwick Sur., 434 ft. from S line, 506 ft. from E line of Blk. 2.
Drlg. sand 3,485 ft.

United Prod. Co.'s No. 12 M. F. Lambert, Hardwick Sur., 469 ft. from S line, 506 ft. from W line of Blk. 4.
T.D. 3,490 ft.; set 9⅝-in. csg. at 3,476 ft.

REFUGIO—REFUGIO COUNTY

Houston Oil Co.'s No. 1 Johnson, center of Blk. 63; (workover).
Perforated csg. 5,160-75 ft.; set screen; T.D. 5,188 ft.

Houston Oil Co.'s No. 16 W. J. J. Heard, 660 ft. SE of No. 15.
Drlg. sand with S.O., 4,934 ft.

Houston Oil Co.'s No. 16 F. B. Rooke, 660 ft. W of No. 15.
Drlg. hard sandy shale at 3,959 ft.

United Prod. Co.'s No. 8 J. A. Lambert, 833 ft. N of NW cor. of W. Heard tract and 150 ft. W of tract line, L. M. Rogers Sur.
T.D. 6,344 ft.; washed well; set tubing and put on christmas tree.

COLETTA CREEK—VICTORIA COUNTY

Rupert Cox's No. 1 Antone Trybil, R. Machala Sur.
Derrick.

Albert Plummer's No. 2 Terrell, 695 ft. from NW line, 330 ft. NE line of 57-ac. tract, Manchola Sur.
Testing; T.D. 2,536 ft.

Albert Plummer's No. 1 Zimmer, 330 ft. NE and SE lines of lease in Manchola Sur.
Coring 4,404 ft.

KEKEAR—VICTORIA COUNTY

Gulf Prod. Co.'s No. 6 Keeran, begin at intersection of R.R. and SW line of survey.

thence NE along R.R. 4,267 ft., thence NW at R/A 2,539 ft. in M. DeLeon Sur.
Drlg. sand 5,608 ft.

McFADDIN-O'CONNOR DISTRICTS—VICTORIA AND REFUGIO COUNTIES

Humble Oil & Ref. Co.'s No. 2 McFaddin.
C. O. Edwards Sur.
Drlg. shale 4,324 ft.
Humble Oil & Ref. Co.'s No. 16 O'Connor, 923 ft. N by 45 deg. E of well No. 15, F. Rois Sur.
T.D. 3,040 ft.; P.B. to 3,032 ft.
Texas Co.'s No. 2 McFaddin, 9,150 ft. S and 200 ft. at R/A out of NW cor. of C. M. B. Hoyt Sur.
Drlg. shale 5,881 ft.

CLAY CREEK—WASHINGTON COUNTY

Sun Oil Co.'s No. 10 Janner.
Comp.; T.D. 1,300 ft.; I.P. 15 bbls. per hr.
Sun Oil Co.'s No. 2 Kubel.
Shale 2,249 ft.

LOUISE—WHARTON COUNTY

Pure Oil Co.'s No. 2 Garrett, 930 ft. from NW and 330 ft. from NE of S cor., Sec. 23, T. W. Heard Sur.
Location.
Pure Oil Co.'s No. 1 Adams, T. W. Heard Sur., Sec. 26, Abst. 465, 471 ft. NW cor., 467 ft. from SW line out of most westerly NW cor. of section.
Set 9⅝-in. csg.; T.D. 5,150 ft.; comp.; I.P. 37 bbls. in 12 hrs.; ¼-in. choke; tubing pressure 1,835 lbs.; csg. pressure 285 lbs.
Pure Oil Co.'s No. 2 Stewart, Morris & Cummings Sur., Sec. 25, 930 ft. out of SW cor. of 160 acres.
T.D. 3,236 ft.; D.S. stuck.

SOUTH LOUISIANA FIELDS
BLACK BAYOU—CAMERON PARISH

Brownie Babbette Oil Co.'s No. 1 R. A. Moore, 562 ft. W, 50 ft. S of NE cor. of E½ of SE Sec. 18-12s-12w.
Swabbed S.W. and S.D.; T.D. 6,298 ft.
Shell Pet. Corp.'s No. 3 State.
Reaming 6,246 ft.
Shell Pet. Corp.'s No. 20 Watkins, 1,611 ft. S and 216 ft. W of NE cor. Sec. 18-2s-12w.
Rig up.

BOSCO—ACADIA AND ST. LANDRY PARISHES

Superior Oil Co.'s No. 2 Arceneaux, 1,963 ft. S and 1,708 ft. W of NE cor. of Sec. 23-8s-3e.
Building derrick.
Superior Oil Co.'s No. 2 Comeaux, 1,876 ft. S and 467 ft. W of NE cor. Sec. 24-8s-3e.
Rig up.
Superior Oil Co.'s No. 2 Hermance, 1,176 ft. S, 597 ft. E of NW cor. Sec. 24-8s-3e.
Set 9⅝-in. csg. 7,825 ft.; W.O.C.
Superior Oil Prod. Co.'s No. 1 Adras Guilbeau, 492.6 ft. E and 508.2 ft. S from NW cor. of SW Sec. 26-8s-3e.
Abd. 8,810 ft. in shale.
Superior Oil Co.'s No. 3 Iseringhauser, 1,517 ft. E, 330 ft. N of SW cor. Sec. 27.
Bldg. derrick.
Superior Oil Co.'s No. 1 Malancon, 375 ft. S and 63 ft. E of NW cor. SW Sec. 34-8s-3e.
Drlg. shale 6,548 ft.
Superior Oil Co.'s No. 2 Larcade, 502 ft. N and 1,197 ft. E. SW cor. Sec. 26-8s-3e.
Drlg. sand and shale 6,920 ft.
Superior Oil Co.'s No. 4 Larcade, 658 ft. S and 2,292 ft. E from NW cor. of Sec. 35-8s-3e.
Derrick.
Superior Oil Prod. Co.'s No. 1 Euclide LeBlanc, 1,873 ft. S and 673.2 ft. W of NE cor of Sec. 33-8s-3e.
Oil show 8,060 ft.; reaming; T.D. 8,085 ft.
Superior Oil Prod. Cor.'s No. 1 Lucien Lavergne, 596 ft. E and 330 ft. N of SW cor. of Sec. 27-8s-3e.
Drlg. sand and shale 8,020 ft.
Superior Oil Prod. Co.'s No. 1 Mr.'se Lavergne, 269.7 ft. W and 88 ft. N of SE cor. of Sec. 28-8s-3e.
Derrick.
Superior Oil Prod. Co.'s No. 1 Auguste Martinez, 2,510.6 ft. S and 1,047.3 ft. W of NE cor. of Sec. 35-8s-3e.
P.B. to 9,103 ft.; T.A.; T.D. 9,325 ft.
Superior Oil Co.'s No. 1 Trahan, 1,393 ft. N, 543 ft. W of SE cor. Sec. 27.
Rig up.
Superior Oil Co.'s No. 2 Hermandez, 329 ft. from S line, 669 ft. W of NE cor. of NW of Sec. 34-8s-3e.
Derrick.
Superior Oil Co.'s No. 2 Iseringhauser, 669 ft. from W line, 330 ft. from N line of 31.86-acre tract, Sec. 35-8s-3e.
Drlg. sand 7,150 ft.
Superior Oil Co.'s No. 1 L. Johnson, 1,623 ft. N and 762 ft. E of SW cor. of NE of Sec. 34-8s-3e.
Drlg. sand and shale 8,122 ft.
Superior Oil Co.'s No. 3 Larcade, 542 ft. E and 500 ft. N of SW cor. of Sec. 34-8s-3e.
Set 13⅜-in. csg. at 1,266 ft.; W.O.C.
BAY JUNOP—TERREBONNE PARISH
Texas Co.'s No. 5-B State, 2,202 ft. N and 944 ft. E of SW cor. of Sec. 23-21s-14e.
Drlg. sand 4,124 ft.
CAILLOU ISLAND—TERREBONNE PAR.
Texas Co.'s No. 14 State-Caillou Island, 1,514 ft. E and 2,628 ft. S. NW cor. Sec. 29-23s-20e.
Cmtd. csg.; T.D. 2,935 ft.
CAMERON MEADOWS—CAMERON PAR.
Burton-Sutton's No. 1 School Land.
Drlg. shale 4,924 ft.
Burton-Sutton Oil Co.'s No. 4 School Land, 2,891 ft. W and 150 N of SE cor. of Sec. 16-4s-13w.
Pulling tubing to re-plug back pressure valve in attempt to complete; T.D. 4,537 ft.
Texas Co.'s No. 1 Miami Corp.
Prepare to set csg. 715 ft.
JENERLY—CALCASIEU PARISH
Union Sulphur Co.'s No. 3 Hunter, 1,366 ft. N 425 ft. W of SE cor. 85½ Sec. 21-9s-11w.
Waiting orders; T.D. 5,352 ft.
DOG LAKE—TERREBONNE PARISH
Texas Co.'s No. 11 State, 150 ft. N and 2,474 ft. W. SE cor. Sec. 21-21s-14e.
Building derrick.
Texas Co.'s No. 15 State, 2,603 ft. N and 1,368 ft. W, SE cor. Sec. 21-21s-14e.
Rig up.

GUEYDAN—VERMILLION PARISH

Pure Oil Co.'s No. 6, Alliance Trust, 667 ft. E, 1,787 ft. S line of lease, Sec. 34-11s-1w.
Drlg. shale 9,222 ft.

HACKBERRY—CAMERON PARISH

Gulf Ref. Co.'s No. 15-A M. P. Irwin, 366 ft. N and 241 ft. W of the SE cor. of Sec. 12-12-10.
Drlg. sand 6,212 ft.
Texas Co.'s No. 13-B State, 400 ft. N of NE cor. of lease, Sec. 13-12s-10w.
Location.
Union Sulphur Co.'s No. 9 Humble, 300 ft. E and slightly N of No. 1 well, or 330 ft. N and 270 ft. E of the SW cor. of Sec. 12-12s-10w.
Drlg. sand rock 5,045 ft.
Yount Lee Oil Co.'s No. 1-A Gulf Land, 2,000 ft. S and 50 ft. E of the NW cor. of Sec. 22-12-10.
Rig up.
Yount Lee Oil Co.'s No. 2-A Gulf Land, 1,100 ft. S and 50 ft. E of the NW cor. of Sec. 31-12-10.
Rig up.
Yount Lee Oil Co.'s No. 15-A Gulf Land, 1,160 ft. S and 715 ft. W of the NE cor. of the SW of Section 16-13-10.
Drlg. sand 3,215 ft.

NEW IBERIA—IBERIA PARISH

I. Delcambre's No. 1 Viatar, 150 ft. E, 150 ft. S and 150 ft. W of SE cor. of tract, Sec. 41-12s-5e.
Fishing 245 ft.
Harrison & Abercrombie's No. 1 J. E. Schuring, 3,480 ft. S 75 deg. 25 min. west along section line from E cor. of fractional Sec. 44-12s-5e. and thence 1,131 ft. N 11 deg. 25 min. W, or at R/A to said line in Sec. 56-12s-7e.
Drlg. salt 3,160 ft.
Y. D. Spell's No. 2 Sabiater, 1,200 ft. N and 28 ft. W of E line, Sec. 54-12s-7e, 150 ft. N of discovery well.
Drlg. shale 2,210 ft.

IOWA—CALCASIEU AND JEFF DAVIS PARISHES

Magnolia Pet. Co.'s No. 10 Wait, 330 ft. N and E of SW cor. of lease.
Rig up.
Magnolia Pet. Co.'s No. 3 Willett, 335 ft. from S line, 990 ft. from W line of NW Sec. 7-9s-6w.
Drlg. sandy shale 6,525 ft.
Shell Pet. Corp.'s No. 1 Scott, 330 ft. out of NW cor. of lease.
P.B. to 4,850 ft.; sidetracking.
Shell Pet. Corp.'s No. 5 Stratford, 1,094 ft. S, 330 ft. E of NW cor. of Sec. 18.
T.D. 6,909 ft.; pulled tubing.
Shell Pet. Corp.'s No. 3 Ardoin, 990 ft. S and 300 ft. E of NW cor. 8½ NW Sec. 13-9s-6e.
Cmtd. 9⅝-in. csg. 6,654 ft.; T.D. 6,670 ft.
Shell Pet. Corp.'s No. 3 Tuten, 1,159 ft. W and 330 ft. from S of NE cor. SE Sec. 13-9s-6w.
Drlg. sandy shale 2,004 ft.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 14 Housierre-Latrielle, 260 ft. N of No. 12, Sec. 47-9s-2w.
Drlg. anhydrite 5,541 ft.

LAKE BARRE—TERREBONNE PARISH

Texas Co.'s No. 10 L.L.&E., 4,543 ft. S, 500 ft. W of NW cor. Sec. 30-21s-20e.
No report.
Texas Co.'s No. 11 L.L.&E., Sec. 30-21s-20e.
T.D. 3,693 ft.; sidetracked at 2,668 ft.; drlg. lime and anhydrite 2,753 ft.
Texas Co.'s No. 12 L.L.&E.
Drlg. 3,334 ft.

LAKE HERMITAGE—PLAQUEMINES PARISH

Humble O. & R. Co.'s No. 2 LaFourche, Basin Levee Dist.
Drlg. sand 4,665 ft.

LAKE PELTO—TERREBONNE PARISH

Whitstone O. & G. Co.'s No. 1 Buckley, 300 ft. S and E of NW cor. SW SW Sec. 35-19s-16e.
S.D. 2,700 ft.

LAKE WASHINGTON—PLAQUEMINES PARISH

Humble O. & R. Co.'s No. 13 Cockrell-Moran, 650 ft. N and 31 deg. 30 min. E of No. 3 in Twp. 20s-26e.
Drlg. shale 2,822 ft.

LEEVILLE—LAFOURCHE PARISH

Emerald Pet. Co.'s No. 7 State of Louisiana.
Derrick.
Gulf Prod. Co.'s No. 10 Bernard, 1,833 ft. E, 958 ft. S of NW cor. Sec. 26-21s-22e.
Location.
Gulf Prod. Co.'s No. 2 Community, 50 ft. W and 1,300 ft. E of NW cor. Sec. 26-21s-22e.
Derrick.
Gulf Prod. Co.'s No. 9 Bernard, midway between Gulf's No. 3 and No. 7 on L. Bernard lease, 48 ft. from NS line of lease, Sec. 26-21s-22e.
Drlg. sand 3,882 ft.
Gulf Prod. Co.'s No. 8 Bernard, 868 ft. E along S line of 5.08-ac. tract from SW cor. and 446 ft. N at right angles, Sec. 26-21s-22e.
Fishing 3,888 ft.; sticky shale.
Emerald Pet. Co.'s No. 8 State of La., 455 ft. N of No. 1.
Drlg. shale 3,503 ft.
Emerald Pet. Co.'s No. 10 State, west bank, 300 ft. S of well No. 1.
Location.
Emerald Pet. Co.'s No. 11 State, east bank, 327 ft. N of well No. 1.
Location.
Emerald Pet. Co.'s No. 12 State, east bank, 150 ft. S of well No. 1.
Location.
Frank L. Hill's No. 1 Bernard, 1,433 ft. N and 808 ft. E of SW cor. Sec. 26-21s-22e.
S.D. 2,670 ft.
Leesville Oil & Gas Co.'s No. 1 Southern Louisiana Canal Navigation Co., 35 ft. W of Bank of Bayou, 15 ft. N of S bank, Sec. 26-21s-22e.
Drlg. shale 3,832 ft.
Prince Oil Co.'s No. 3 Deambre Nical, 1,337 ft. E and 2,276 ft. N of SW cor. Lot 6, Sec. 26-2s-22e.
T.D. 2,900 ft.; I.P. 1,937 bbls. per day; ⅝-in. choke.
Texas Co.'s No. 20 L.L.&E., Sec. 27-21s-22e.
Drlg. sandy shale 2,478 ft.

LOCKPORT—CALCASIEU PARISH

Magnolia Pet. Co.'s No. 12 Bordages, 666 ft. W and 93 ft. N of SE cor. N½ NE Sec. 8-10s-10w.
Drlg. shale 6,516 ft.
Union Sulphur Co.'s No. 1 Moss (W.O.).
Drlg. shale 7,203 ft.
Union Sulphur Co.'s No. 1 Farquaher, 200 ft. S and W lines, NE cor. SW SE Sec. 36-12s-10w, 2-ac. tract.
T.D. 6,715 ft.; flowed small amount fluid; killed well and pulling tubing.

PORT BARRE—ST. LANDRY PARISH

Gulf Prod. Co.'s No. 1 Wilson-Cochran, 660 ft. S along property line and 150 ft. E of most southerly NE cor. of Texas Co.'s Botnay Bay Lbr. Co. lease.
No report.
Gulf Prod. Co.'s No. 8 Wilson Cochran, 568 ft. E along S line of L. Bernard 5.08-acre tract from SW cor. of Sur., 466 ft. N at right angles to said line, being 400 ft. N of line drawn through No. 1 and No. 2, Sec. 26-22s-12e.
Location; building road.
Phillips Pet. Co.'s No. 1 Sibille, 2,063 ft. S from R.R. along W line of Sibille Co., Inc., 150-acre tract and 50 ft. E in Sec. 7-6s-6e.
Drlg. shale 4,358 ft.
Texas Co.'s No. 24 Botney Bay, 600 ft. S along E line, 150 ft. W at R/A from most southerly NE cor. of Botany Bay Lumber Co. lease, Sec. 4-6s-5e.
Comp.; I.P. 1,890 bbls. per day; ⅝-in. choke.

ROANOKE—JEFFERSON DAVIS PARISH

Humble O. & R. Co.'s No. 2 Devilbiss, 1,399 ft. W, 466 ft. S of NE cor. Sec. 16-9s-4w.
Reaming 6,746 ft.; shale.
Humble O. & R. Co.'s No. 1-B Devilbiss.
Drlg. shale 7,719 ft.
Humble O. & R. Co.'s No. 1 Martin Kratzer, 400 ft. out of SE cor. 120-ac. tract, Sec. 14-9s-4w.
T.D. 8,830 ft.; comp. 4,200,000 ft. of gas.
Shell Pet. Corp.'s No. . Jarnigan, 330 ft. E, 660 ft. S. NW cor. Sec. 12-9s-4w.
T.D. 8,800 ft.; P.B. to 8,748 ft.

SORRENTO—ASCENSION PARISH

Union Sulphur Co.'s No. 26 United Land.
Drlg. hard sandy lime rock 4,809 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 770 fee (D.D.).
T.D. 4,014 ft.; comp. 100 bbls. fluid on pump, 65% wtr.
Union Sulphur Co.'s No. 795 fee.
Drlg. shale 5,960 ft.
Union Sulphur Co.'s No. 801 fee, 1,863 ft. N, 670 ft. E of C of Sec. 29-9s-10w.
T.D. 3,106 ft.; comp. 600 bbls. per day; ⅝-in. choke; 350 lbs. pressure.
Union Sulphur Co.'s No. 802 fee, 998 ft. N, 1,340 ft. E of C of Sec. 29-9s-10w.
No report.
Union Sulphur Co.'s No. 805 fee.
T.D. 3,379 ft.; sand with S.O. at 3,371-79 ft.; cmtd. csg.
Union Sulphur Co.'s No. 2 Kelly, 1,345 ft. S, 198 ft. W of the NE cor. of Sec. 30-9s-10w.
Drlg. wtr. sand.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 12 Yount Lee fee, 600 ft. S of No. 11, in line with Nos. 9 and 10, Sec. 12-13-3w.
S.D. 7,439 ft.

VINTON—CALCASIEU PARISH

Vinton Oil Co.'s No. 1 J. G. Gray, 330 ft. from N line and 846 ft. from E line of SE NE Sec. 4-11s-12w.
Drlg. shale 3,050 ft.
Vinton Pet. Co.'s No. 3 Mathilda Gray, 100 ft. N of No. 1 and in Sec. 33-10s-12w. (W.O.); T.D. 3,325 ft.; W.O.C.

WHITE CASTLE—IBERVILLE PARISH

Shell Pet. Corp.'s No. 9 Wilburn, 300 ft. E of No. 7.
Cmtd. 9⅝-in. csg.; T.D. 7,517 ft.

MISCELLANEOUS WILDCATS
TEXAS
ANGELINA COUNTY

Thayer et al's No. 1 Dearmond, J. T. Peavy Sur., 2½ miles SE of Zavalla.
Hard lime 1,915 ft.; T.D.

BRAZORIA COUNTY

Amerada Pet. Corp.'s No. 1 Houston Farm Dev. Co., 1,414 ft. N, 816 ft. W of SE cor. of L. Bachelder Sur.
Drlg. shale 6,520 ft.
Harrison & Abercrombie's No. 1 Bernard River Land, 1,000 ft. out of SE cor. of Lot 23.
Hole cleaned to 6,920 ft.; T.D. 7,340 ft.
Gilliock Pet. Co.'s No. 1 Frank Trukas, 300 ft. from S and 1,000 ft. from E lines of 75-ac. tract, Sec. 7, H.T.&B.R.R. Sur.
Coring top of Frio at 6,900 ft.
Holt et al's No. 1 Griffith, J. B. Bailey Sur.
T.D. 4,300 ft.; waiting orders.
Stanolind Oil & Gas Co.'s No. 1 J. W. Surface, 466 ft. N and 400 ft. W of most easterly SE cor. of 75.9-acre tract, A.C.H. &B. Sur., Abst. 462.
Location.
Turnbull & Irwin's No. 1 Braden, H.T.&B. Sur., SE of Sec. 56, 4 miles SE of Juliff.
Abd. 6,700 ft.

BRAZOS COUNTY

Buck Wallace's No. 1 Brosch, 1,000 ft. from S line, 400 ft. from W line of 251-ac. tract in G. W. Singleton Sur.
T.D. 860 ft.; S.D.

CALHOUN COUNTY

Continental Oil Co.'s No. 1 American Nat. Realty Co., C of NE of Sec. 6, Blk. C.
T.D. 6,625 ft.; rotating 7⅝-in. csg. trying to get through shale at 6,575 ft.
Herman Heep's No. 3 Welder, Jose Maria Rios Sur., 373 ft. from NW line and 1,830 ft. from NE line of survey.
T.D. 6,290 ft.; dry and abd.
Steen Drlg. Co.'s No. 1 Stansel, 500 ft. along N line from NW cor., thence 250 ft. at R/A of 371.2-ac. tract, A. E. Parsa Sur.
Drlg. shale 4,460 ft.

CHAMBERS COUNTY

Sun Oil Co.'s No. 1 Hamilton 1,400 ft. from N line, 1,400 ft. from W line of survey, T.&N.O. Sur., Sec. 128.
Location.

COLORADO COUNTY

Coyle-Concord Oil Co.'s No. 1 Nelson, 2,300 ft. SE of NW cor. of Sec., 2,300 ft. SW at right angles in L.&G.N. Sur.
S.D. 6,194 ft.

FORT BEND COUNTY

W. A. Shafer et al's No. 1 V. B. Bortash, 693 ft. SW of NE line and 1,002 ft. NW of SE line of Sec. 52, H.&T.C. Sur.
S.D. 2,160 ft.
Vice Oil Co.'s No. 1 H. R. Darst, 5,000 ft. N of S line and 695 ft. W of E line of E. Powell Sur.
S.D. 1,670 ft.
Wilks et al's No. 1 Norris, 300 ft. W and 1,353 ft. S of N cor. of 526-ac. tract (5 miles S of Needville).
Rigged up and S.D.

GALVESTON COUNTY

Gilliock Pet. Co.'s No. 2 Mexo Stewart, 900 ft. N and 150 ft. W of No. 1, Alex Farmer Sur.
Spudded.
H. E. Sedberry, trustee's No. 1 Thomas Shaw (200 acres), 150 ft. NW line, 105 ft. NE line, Lot 66, Sec. 7, Hall & Jones, Galveston Island.
S.D. 53 ft.
Humble O. & R. Co.'s No. 1-B Stewart, 435 ft. S of Dickinson Bayou, 460 ft. E of E line of Blk. 16, Beatty Subd., John Sellers Sur.
Shale 7,727 ft.; cmtd. 9⅝-in. csg. at 7,701 ft.
Pure Oil Co.'s No. 1 J. W. Sheler (321.3 acres), 2,760 ft. S of Dickinson-San Leon highway and midway E and W lines of lease, B.B.B.&C. Sur.
Cmtd. 9⅝-in. csg. at 6,984 ft.

GRIMES COUNTY

Hubert Holt et al's No. 1 Simon Fuqua, 1,200 ft. N of S line and 400 ft. W of E line of 177-ac. lease and survey, Moses Evans Sur.
S.D. 176 ft.
Dr. Marshall et al's No. 1-B Todd, 300 ft. from E line and 175 ft. from N line of 160-ac. tract in extreme NW cor. of county (35 ft. N of No. 1).
Laying water line; T.D. 886 ft.
W. D. Roan et al's No. 1 D. C. Kelly, 1,823 ft. from N line and 168 ft. from E line of U. Sanders Sur., near Carlos.
T.D. 2,380 ft.
J. H. Woodward et al's No. 1 O. A. Hamilton, center of Hamilton 98.5-ac. tract 8 of Richards in the O. Hill Sur.
S.D. 3,290 ft.

HARRIS COUNTY

American Liberty Oil Co.'s No. 1 Sweeney, Sec. 17, W.C.R.R. Sur.
Drlg. shale 5,150 ft.
C. B. Bunte, Inc.'s No. 1 Laura Lackney, 6,400 ft. from E line, 194 ft. from S line of Henry Reinerman Sur., near NW city limits of Houston.
Drlg. shale 2,545 ft.
C. C. Foster and others' No. 1 H. K. Johnson, 2,000 ft. from S line and center of E and W lines of G.C.&S.F. Sur.
Drilled 25 ft. and S.D.
Farrell Bros. Co.'s No. 1 Brooks Est., 7,400 ft. S and W of NE cor. of R. & R. Vince Sur.
Cmtd. csg. 412 ft.
W. U. Paul's No. 1 E. M. House, 2,200 ft. N and 1,000 ft. E of NE cor. of H. Benson Sur. in M. Magruder Sur.
S.D. 3,846 ft.

JEFFERSON COUNTY

Magnolia Pet. Co.'s No. 1 E. Herbert Trust, 990 ft. N, 330 ft. E of SW cor. of P. E. Bell Sur. No. 2.
Drlg. sandy lime 7,990 ft.
Sun Oil Co.'s No. 1 H. Long, 1,500 ft. N line, 990 ft. E line of lease.
P.B. to 6,190 ft.; drlg. 6,311 ft. in cmt.

LIBERTY COUNTY

S. M. Bruner et al's No. 1 N. Bell, 150 ft. from N line and 150 ft. from W line of Bell's 187-ac. tract, H.&T.B. Sur. No. 4.
Rigging up.
Extension Oil Co.'s No. 1 J. A. Levett, 300 ft. from E and 400 ft. from S line of lease, P. P. Deevers Sur.
S.D. 3,335 ft.
Liberty-Independent Oil Co.'s No. 1 J. M. Neal, 2,650 varas from E line and 600 varas from N line of Samuel Strong Sur.
S.D. 2,410 ft. (corrected).
A. L. Maxwell's No. 1 M. D. Hinsliff, 300 ft. from E line and 1,000 ft. from N line of H.&T.C. Sur. No. 150.
Location.
Thomas et al's No. 1-A Hicks, 660 ft. from W line and 3,960 ft. from S line of tract in Green Sur.
Preparing to drill deeper.
Turnbull and Irwin's No. 1 Lynott and Buffum, 466 ft. S and E of NW cor. of SE 100 acres of W 400 acres of 856-ac. tract, James Robeson Sur.
S.D.; T.D. 4,751 ft. in shale.

MATAGORDA COUNTY

Continental Oil Co.'s No. 1 Robbins, J. G. Franz Sur.
Trying to pull 5½-in. csg. at 6,995 ft.
Griffith's No. 1 fee, 2,000 ft. from N line and 2,000 ft. from W line of Wm. E. Bell Sur.
Rig up and S.D.

MONTGOMERY COUNTY

Brown & Wheeler et al's No. 1 Jones, 660

ft. out of NW cor. of S 175 acres of 350-ac. tract.
Location.

ORANGE COUNTY

Blue Line Oil Co.'s No. 1 Godwin, Richard Ballew Sur., 300 ft. from E line and 150 ft. from NE line of Godwin 10-ac. tract.
T.D. 2,986 ft.; moving in heavier rig.
Texas Louisiana Oil Co.'s No. 1 Starks, 2,450 ft. N of NW cor. M. Delano Sur. 46, 10.-640 ft. E at R/A.
T.D. 5,055 ft.; S.D.

POLK COUNTY

Howard Dailey et al's No. 1 E. B. Knox, 1,440 ft. W and 1,920 ft. S of NE cor. of F. Chairs Sur., 1½ mile NE of Corrigan.
S.D. 60 ft.
J. F. Anderson's No. 1 E. L. Duke (O.W.D. D.), 400 ft. from E and 350 ft. from S of SW cor. of P. Michelick 50-ac. lease, Abst. 66, P. J. Mineral Sur.
Waiting on a new mud pump; T. D. 5,-304 ft.
Johnson Bros.' No. 1 J. F. Smith, Isaac Parker Sur., 330 ft. from S and E lines from J. F. Smith's 55-ac. tract.
Coring shale 3,780 ft.
Alpha Pet. Co.'s No. 1 Martha E. Roberts, 2,000 ft. W and 5,000 ft. S of most western SW cor. of P. A. Sublett Sur., J. F. DeRumayor Sur.
Drlg. shale and shells 4,739 ft.

REFUGIO COUNTY

Heard-Holland Oil Co.'s No. 1 Peck, 366 ft. N and W out of NW and SW of Bonnie View Subd.
S.D. 2,345 ft.
Quintana Oil Co.'s No. 1-B O'Connor, 180 ft. E line and 2,625 ft. S line of B.B.B.&C. Sur., Abst. 96.
T.D. 6,800 ft.; P.B. to 5,800 ft.

VICTORIA COUNTY

Devonian Oil Co.'s No. 1 J. M. Fagan, Peter Teal League, Abst. 112, 9,000 ft. from N line, 466 f.. W of E line.
Rig up.
Texas Co.'s No. 1 J. B. Midgett, N 25 deg. W 1,000 ft. and S 55 deg. W 1,000 ft. from SE cor. of lease in T.&N.O. Sur., Sec. 94
Tested 475 lbs. of gas pressure on D.S. test from 2,810-47 ft.; T.D. 2,847 ft.

WALKER COUNTY

E. P. Kilgore et al's No. 1 Lamkin, 320 ft. from S line and 320 ft. from E line of Lamkin 1,000-acre tract in J. J. Holcomb Sur.
Location.

WHARTON COUNTY

Texas Gulf Prod. Co.'s No. 1 Kresta, 440 ft. N and E from SW cor. of tract in Sec. 64, W. B. Ivey Sur.
Drlg. wtr. sand 5,471 ft.

SOUTH LOUISIANA

ALLEN PARISH

Humble O. & R. Co.'s No. 1 Industrial Lumber Co., 1,220 ft. W line and 2,440 ft. S line Sec. 21-3s-4w.
Drlg. shale 7,136 ft.

ASCENSION PARISH

Humble O. & R. Co.'s No. 2 S. Gumbel & Co., 500 ft. southwesterly from No. 1, 375 ft. easterly from road and approx. 475 ft. N of S line of tract, Sec. 33-10s-3e.
Derrick.

BEAUREGARD PARISH

Gulf Ref. Co.'s No. 1 Lutcher Moore, 660 ft. from S line, 760 ft. from E line, NE Sec. 35-6s-12w.
Drlg. shale 3,520 ft.

CALCASIEU PARISH

Fohs' No. 1 O. H. Castle, 330 ft. S and 330 ft. W of C Sec. 13-9s-8w.
Location.
Humble O. & R. Co.'s No. 1-B Industrial Lbr. Co., 466 ft. N, 1,399 ft. W of the SE cor. Sec. 27-8s-12w.
Rigging up.
Union Sulphur Co.'s No. 2 Barbe, 379 ft. S and 350 ft. W of NE cor of SE of Sec. 11-9s-3w.
Making 12 bbls. of fluid per hr., 75% S.W.; T.D. 4,772 ft.
Union Sulphur Oil Co.'s No. 1 State Land, 1,940 ft. S. 2,513 ft. E of NW cor. Sec. 12-9s-8w.
Drlg. rock at 4,096 ft.
Wheeler Oil Co.'s No. 1 Gabbert, 1,322 ft. E and 548 ft. N of SW cor. of Sec. 28-9s-7w.
Rigging up.

EAST FELICIANA PARISH

Thompson Creek Oil Co.'s No. 1 Fannie Noland, 2,600 ft. E and 1,580 ft. N of SW cor. Sec. 70.
Drlg. shale 700 ft.

CAMERON PARISH

Texas Co.'s No. 10-A State, 14,355 ft. W and 2,370 ft. N of NE cor. Sec. 1-14-9w in Twp. 13s-9w.
D.S. stuck; T.D. 4,962 ft.

LAFOURCHE PARISH

Barnsdall Oil Co.'s No. 3 Harang Plantation
S.D. 4,252 ft.
R. L. Gay, trustee's No. 1 Godchaux, 5,934 ft. N and 1,746 ft. E in common cor. of Lots 24 and 26, Twp. 15s-19e.
S.D. 4,226 ft.
Southern Sulphur Corp.'s No. 1 D. L. Lagraise, 800 ft. E of NW cor. of Lot 7 thence 350 ft. S of Sec. 26-21s-22e.
Spudded and S.D.

PLAQUEMINES PARISH

Texas Co.'s No. 13 State-Garden Island Bay, Sec. 107-23s-33e.
Location.
Venice Corp.'s No. 1 Burras
Set 10-in. csg. at 1,533 ft.

RAPIDES PARISH

J. B. Evers' No. 1 G. Wettermark, 640 ft. S and 530 ft. E. NW cor. NE SW Sec. 35-6n-2e.
Location.
C. D. Lee's No. 1 Barrett, 330 ft. NW of SE line and 330 ft. NE of SW line of Sec. 46-5n-1w.
Rig up and S.D.

ST. BERNARD PARISH

Danziger's No. 1 Battles, 326 ft. N, 2,300 ft. W of SE cor. Sec. 135-14s-14e.
Drlg. shale 4,130 ft.

ST. LANDRY PARISH

Bailey Gaunce's No. 1 Lewis, 300 ft. N and E of SW cor. of NW of NE of Sec. 20-5s-6e (workover).
S.D. 5,943 ft.

ST. MARTIN PARISH

Texas Co.'s No. 6 St. Martin Land Co., 660 ft. S and 500 ft. W of NE cor. SE Sec. 17-8s-7.
Drlg. sand 3,881 ft.

VERMILLION PARISH

Moore Bros.' No. 1 Brussard, 350 ft. S of N line, 350 ft. E of W line, NE cor. Sec. 33-11s-3e.
T.D. 4,065 ft.; fishing.

VERNON PARISH

Robert R. Williams, Sec. 8-1n-9w.
Rig up and S.D.

La.-Ark. Wildcats

(Continued from Page 55)

DeSoto Pet. Co.'s No. 1 B. Y. Wemple, C S½ SE NE SW Sec. 14-12-11.
Drlg. 1,250 ft.
E. L. Foster's No. 1 Youngblood, Sec. 9-11-14.
R.U. to deepen 1,502 ft.
Hester et al's No. 1 Alston, 330 ft. S and W of center of Sec. 11-11-16.
S.D. 2,100 ft.
George Le Grande's No. 1 Vance, 180 ft. N and W SE cor. SW Sec. 34-12-16.
Set 10-in. 50 ft.; drlg. 280 ft.
W. K. Williams' No. 1 Wemple, 460 ft. N, 330 ft. W, SE cor. Sec. 15-12-11.
Drlg. 2,700 ft.

EAST CARROLL PARISH

Holcomb & Thomason's No. 1 Milliken, 193 ft. N, 1,240 ft. E of C Sec. 22-23-12e.
Rigging up.

LA SALLE PARISH

A. D. Hudson et al's No. 1 Urania, 600 ft. W, 150 ft. N, SE cor. NE SW Sec. 7-10-2e.
S.D. 1,503 ft.
F. A. Trichelle's No. 1 Urania, Sec. 3-9-1e.
Rigging up.

MOREHOUSE PARISH

Southern Carbon Co.'s No. 65 fee, 2,030 ft. S, 600 ft. E NW cor. Sec. 14-20-4e.
Set 10-in. 100 ft.
Zeiger & Bacon's No. 1 Crossett, 400 ft. N, 300 ft. W, SE cor. Sec. 41-23-6e.
T.A. 3,111 ft.

NATCHITOCHES PARISH

Benedum & Trees' No. 1 Carrier Est., 300 ft. N and W, SE cor. Sec. 6-8-7.
Rigging up.
Clyde Crichton's No. 1 Friedman Est., 406 ft. N, 428 ft. E, SW cor. Sec. 52-7-6.
S.D. for wtr., 1,088 ft.
Jack Lent's No. 1 Brown Lbr. Co., 400 ft. S, 300 ft. E, NW cor. NE SW Sec. 27-9-13.
Cmtd. 6⅝-in. 2,471 ft.
Missouri Drlg. Co.'s No. 1 Brown Lbr. Co., 400 ft. N, 330 ft. W, SE cor. Sec. 5-10-10.
S.D. 1,033 ft.
Roy A. Raines et al's No. 1 Raines est., 330 ft. N and E, SW cor. Sec. 8-9-10.
S.D. for water 2,606 ft.

OUACHITA PARISH

Maury Drlg. Co.'s No. 4 Frierson, 660 ft. S and W, NE cor. Sec. 30-19-4e.
Set 12½-in. 150 ft.; set 8-in. 722 ft.; drlg. 1,600 ft.
United Public Service Co.'s No. 3 fee, 660 ft. S and W, NE cor. Sec. 26-19-3e.
Set 9-in. 854 ft.

RED RIVER PARISH

Louis L. Glass' No. 1 Dickson, 400 ft. S and W, NE cor. SE Sec. 32-12-8.
S.D. 1,030 ft.
Circle W and Windsor Oil Co.'s No. 1 Jenkins Est., 660 ft. E and E, NE cor. NW Sec. 4-12-11.
Set 10-in. 60 ft.; drlg. 1,200 ft.
C. M. Cope et al's No. 1 Thomas, 330 ft. S and E, C Sec. 34-13-8.
Set 6⅝-in. 1,609 ft.; testing 1,630 ft.

SABINE PARISH

H. J. Brothers et al's No. 1 Edwards, 300 ft. S. and W. NE cor. SW NW Sec. 29-9-13.
Set 6-in. 1,552 ft.
R. B. Campbell et al's No. 1 Cook Land Co., 150 ft. N, 300 ft. W, SE cor. NW NW Sec. 35-10-12.
Set 6-in. 1,559 ft.; T.D. 1,650 ft.
Gerhig Oil Co.'s No. 3 Burkett, 330 ft. N and E. SW cor. SE SE Sec. 9-9-13.
Comp. pumping 40 bbls., 2,041 ft.
Erle P. Halliburton's No. 3 Burkett, 330 ft. N and W, SE cor. SW SE Sec. 9-9-13.
Set 10-in. 40 ft.; set 8-in. 1,742 ft.
Halliburton & Meadows' No. 1 Jackson, 330 ft. S and E, NW cor. NE NE Sec. 18-9-13.
P.B. to 1,650 ft.
Helena Oil & Gas Co.'s No. 1-B Graham, 330 ft. S and W NE cor. NE NW Sec. 20-9-13.
Used acid 2,000 ft.
L. D. Higgins' No. 2 Burkett, 330 ft. S and E, NW cor. NE NE Sec. 16-9-13.
Set 10-in. 40 ft.; set 8-in. 1,593 ft.
Zan Lloyd's No. 1 Henderson, 330 ft. N and W, C Sec. 29-9-13.
W.O.S.R. 2,021 ft.
Dr. O. B. Hicks' No. 1 Neal, SE SW SE Sec. 18-9-12.
Set 10-in. 40 ft.

RAPIDES PARISH

Evars & Collingsworth's No. 1 Hickman, 330 ft. S and E, NW cor. Sec. 40-4-1e.
Dry and abd. 2,130 ft.
C. D. Lee, trustee's No. 1 Baird Est., SE cor. Sec. 46-5n-1w.
Rigging up.

UNION PARISH

Carbons Consolidated's No. 1 Lankford, 451 ft. N, 383 ft. E. SW cor. SE SE Sec. 3-21-3e.
Set 12-in. 168 ft.; set 8-in. 753 ft.
Lawson & Leavell's No. 1 J. N. Gunter, 640 ft. N and E. SW cor. Sec. 14-23-3w.
Dry and abd. 2,413 ft.

WINN PARISH

Red River Ref. Co.'s No. 3 Tremont Lbr. Co., 320 ft. N, 521 ft. W, SE cor. Sec. 26-11-1w.
Moving in rig.

ARKANSAS

BRADLEY COUNTY

Seton Oil Co.'s No. 1 Murphy, 320 ft. S and W NE cor. SE Sec. 24-15-10.
Dry and abd. 3,510 ft.

COLUMBIA COUNTY

Dudney & Woodward's No. 1 Pearce, 330 ft. S and W, NE cor. NW Sec. 7-17-20.
Set 10-in. 132 ft.; S.D. 500 ft.

HEMPSTEAD COUNTY

Ark. Drlg. Co.'s No. 1 Jones, 1,000 ft. S, 660 ft. W, NE SE Sec. 11-14-24.
S.D.; clearing title 2,808 ft.
B. A. Austin's No. 1 McWilliams, 300 ft. N and W of SE cor. NW SW Sec. 19-13-23.
S.D. 700 ft.
A. H. Bagnelle's No. 1 Trattner & Rhinehart, Sec. 2-13-26.
S.D. 1,992 ft.
F. W. Martin & Co.'s No. 1 Lafferty, 500 ft. N and W SE cor. NW Sec. 17-14-24.
S.D. 2,760 ft.

LAFAYETTE COUNTY

Benedum & Trees' No. 2 Bodcaw, C SE SE NE Sec. 19-16-23.
Drlg. 2,250 ft.
Douglas Lawn's No. 1 Camp, 330 ft. S and W, NE cor. SW SE Sec. 14-15-23.
S.D. 2,910 ft.
R. H. Neely's No. 1 Flemming, SW cor. NW SW Sec. 31-18-25.
Dry and abd. 3,510 ft.

MILLER COUNTY

Fitzwater et al's No. 1 Nerson, SW cor. SE SW Sec. 20-15-27.
S.D. 2,177 ft.
Ark. Oil, Gas & Ref. Co.'s No. 1 Beck, SW cor. NW SW Sec. 34-15-26.
1,200 ft. oil in hole at 2,920 ft.
King Oil Corp.'s No. 1 C. H. Schroder, 200 ft. N, 330 ft. E, SW cor. SW NE Sec. 34-14-28.
Arranging to test 2,587 ft.; (corrected).
Magnolia Pet. Co.'s No. 5 Olivet, Sec. 3-16-26.
Set 12¼-in. 236 ft.; drlg. 2,012 ft.
Magnolia Pet. Co.'s No. 4 Olivet, 330 ft. S and W, NE cor. Sec. 4-16-26.
Comp. pumping 140 bbls., 2,947 ft.
Oil Well Oil Corp.'s No. 1 Dodd, 300 ft. S, 200 ft. E. NW cor. SW NE Sec. 10-19-28.
Drlg. 3,400 ft.
Lee Timberlake's No. 1 Frost Est., 330 ft. N and E. SW cor. SW SE Sec. 27-15-26.
S.D. 20 ft.
John Wrather's No. 1 Beck, SW cor. SW SE Sec. 34-15-26.
Comp. pumping 300 bbls., 2,931 ft.

OUACHITA COUNTY

F. A. Book et al's No. 1 Arnold, Sec. 24-15-16.
S.D. 2,032 ft.
J. S. Carnes' No. 1 Scott, 150 ft. S and E, NW cor. SW NE Sec. 18-14-18.
Cored S.W. sand 2,052 ft.; P.B. to 1,535 ft.
T. J. Gaughan's No. 1 Bragg, 330 ft. N and E, SW cor. NE SE.
Set 10-in. 104 ft.
J. D. Reynolds' No. 1 Guttry, 452 ft. S, 150 ft. W, NE cor. NE SW Sec. 21-15-19.
W.O. 4½-in. 2,173 ft.
Sam M. Richardson & Co., Inc.'s No. 9 J. Goodwin, C NE SW Sec. 32-15-15.
S.D. 2,038 ft.

UNION COUNTY

Mrs. R. K. Jones et al's No. 1 J. Davis, 330 ft. N and W, SE cor. NW NW Sec. 28-16-14.
Arranging to set 6⅝-in. 2,764 ft.
Lion Oil Ref. Co.'s No. 10-A Flenniken, 300 ft. N, 630 ft. E. C Sec. 10-16-15.
Set 10-in. 252 ft.; set 7-in. 2,292 ft.
McCreslenn Oil Co.'s No. 2 G. Norman, 330 ft. N and W, SE cor. SE NE Sec. 3-18-13.
Comp. pumping 150 bbls. 3,574 ft.
McCreslenn Oil Co.'s No. 1 Union Saw Mill Co., 330 ft. N and W, SE cor. NE NW Sec. 3-18-13.
P.B. from 3,577 ft.
Reuter Oil Co., Inc.'s No. 1 J. L. Kinard, 330 ft. S and E, NW cor. SE NW Sec. 33-18-14.
Coring 2,189 ft.
Tubal Pet. Co.'s No. 1 Gaddy, 340 ft. N and E, SW cor. SE NW Sec. 14-17-14.
S.D.; W.O. 3,416 ft.

MISSISSIPPI

AMITE COUNTY

Mineral Resources, Inc.'s No. 1 Anderson, C NE NW Sec. 14-3n-3e.
S.D. 550 ft.

BOLIVER PARISH

White & Jones' No. 1 Ballou, SE SE NW Sec. 17-24n-7w.
Rigging up.

GREENE COUNTY

United Gas Pub. Service Co.'s No. 1 Greene County School Land, W½ W½ Sec. 16-1n-5w.
Rigging up.

JONES COUNTY

Snow-Black Pet. Co.'s No. 2 Watson, 520 ft. W, 200 ft. S. C Sec. 24-7n-13w.
D.S. stuck, 2,900 ft.

LAUDERDALE COUNTY

Bob Dalton's No. 1 Bounds, Sec. 34-7n-16e.
Set 10-in. 540 ft.; S.D.; W.O.

MONROE COUNTY

P. J. McAlpine's No. 1 Frank Rye, Sec. 15-15s-17w.
Drlg. 1,050 ft.
P. J. McAlpine's No. 1 Crook, 1,000 ft. S. 90 ft. W. NE cor. Sec. 15-13s-18w.
Arranging set 8-in. 720 ft.

SIMPSON COUNTY

Berry Corp.'s No. 2 R. T. Berry, Sec. 32-2n-4e.
Set 7-in. 2,048 ft.

WALTHALL COUNTY

Mutual O. & G. Co.'s No. 1 Boyd, SW cor SW SE Sec. 24-2n-9e.
Partly rigged up and S.D.

WARREN COUNTY

Orbet Drlg. Co.'s No. 1 R. L. Parker, 800 ft. E. CWL Sec. 14-16-3e.
S.D. 2,160 ft.

WASHINGTON COUNTY

Perkins & Dees' No. 1 Lee, 1,500 ft. E, 540 ft. N, SW cor. Sec. 33-15n-8w.
Set 10-in. 300 ft. and S.D. (corrected).

WINSTON COUNTY

Jack Vale et al's No. 1 Moody, 713 ft. N, 667 ft. E. SW cor. NW SW Sec. 3-12n-14e.
S.D. 20 ft.

La.-Ark. Proven Fields

NORTH LOUISIANA

CADDO—BLANCHARD

W. T. Boyd's No. 2 Mitchell, 1,975 ft. N, 1,600 ft. W, SE cor. Sec. 6-18-16.
Rigging up.
Louana O. & G. Co.'s No. 3 Hammock, 660 ft. N, 2,310 ft. W, SE cor. Sec. 32-19-16.
Set 8-in. 20 ft.; S.D. for wtr. 710 ft.
M. Segall et al's No. 1 Sharpe, 330 ft. S and E, NW cor. Sec. 11-18-16.
Set 8-in. 20 ft.

CADDO—HOSSTON

Bayou State O. & G. Co.'s No. 1 Connell, 1,900 ft. N, 1,198 ft. E, SW cor. Sec. 15-21-14.
W.O.S.R. 964 ft.
C. G. Gibbon's No. 1 Burglass, 573 ft. N, 660 ft. W, SE cor. NE NE.
Set 6⅝-in. 2,084 ft.
Shoreline Oil Corp.'s No. 44 Crystal, 330 ft. S and E of C Sec. 13-21-16.
Rigging up.
Shoreline Oil Corp.'s No. 3 Harrell, 250 ft. S, 220 ft. E. NW cor. SE SW Sec. 2-21-16
Set 8-in. 1,031 ft.

CADDO—RODESSA

United Gas Pub. Serv. Co.'s No. 1 Christian, 724 ft. N, 1,382 ft. W SE cor. Sec. 23-22-16
Drlg. 5,745 ft.

SABINE PARISH—ZWOLLE

Alexander & Cane's No. 1 Fogman, SE cor. N½ SW NE Sec. 18-7-11.
Arranging set csg. 2,363 ft.
Ivan A. Allen's No. 1 La. Long Leaf, 330 ft. N and W, SE cor. NW NE Sec. 12-7-11.
S.D. for wtr. 2,120 ft.
Crichton & Co.'s No. 1 Williams, 660 ft. N and E. SW cor. SW SE Sec. 6-7-11.
Set 8-in. 41 ft.; D.S. stuck 700 ft.
Dyer et al's No. 1 McCollister, 330 ft. S and E, NW cor. SW NE Sec. 24-7-12.
S.D. 1,100 ft.
Foster & Hartman's No. 1 Bowman-Hicks, 330 ft. S and E, NW cor. NE Sec. 10-7-11.
S.D.; W.O. 2,696 ft.
E. D. Holcomb's No. 1 Porter, 330 ft. S, 330 ft. W. NE cor. SE Sec. 7-7-11.
W.O.S.R. 2,650 ft.
H. C. Maulding's No. 1 Davis, 350 ft. N and W, SE cor. NE NE Sec. 2-7-11.
Rigging up.
H. C. Maulding's No. 2 DeLatin, 330 ft. S and E, NW cor. NE SE Sec. 3-7-11.
S.D. 2,250 ft.
Pelican Nat. Gas Co.'s No. 35 La. Long Leaf, 330 ft. S and E, NW cor. NW NE Sec. 9-7-11.
Pumping S.W. and oil 2,490 ft.
Pelican Nat. Gas Co.'s No. 14 Sabine Lbr. Co., 330 ft. N and W, SE cor. NE SW Sec. 11-7-12.
Tested dry; W.O. 2,642 ft.
K. C. Peterson et al's No. 1 Bowman-Hicks, 330 ft. S and E, NW cor. SW NW Sec. 2-7-9.
Rigging up.
Tarver & Bauer's No. 2 Barthold, 400 ft. E, 312 ft. S, NW cor. NW NE Sec. 35-6-11.
S.W. and abd. 2,606 ft.
Texas Co.'s No. 3 R. Mainer, 330 ft. N and W SE cor. Sec. 5-7-11.
Set 6-in. 2,338 ft.; T.D. 2,650 ft.
Texas Co.'s No. 1 H. E. Wilson, 330 ft. S and W NE cor. SE SE Sec. 31-8-11.
Derrick.
Tex.-La.-Ark. Oil Co.'s No. 1 Pickering Lbr. Co., Sec. 3-3-12.
S.D. 2,210 ft.

EAST TEXAS (BORDER COUNTIES)

CASS COUNTY

Eastern Texas Prod. Co.'s No. 1 Baker, Jesse Walling Sur.
Drlg. 3,950 ft.
R. K. Kamon et al's No. 1 Savage, Mary Patterson Sur.
S.D. 4,016 ft.

HARRISON COUNTY

R. C. Payne et al's No. 1 Lowery, E. D. Spain Sur.
P.B. to 2,524 ft.

PANOLA COUNTY

R. H. Davis' No. 1 Wooten Est., Winnie Mann Sur.
S.D. 2,092 ft.
Fagant & Salmon's No. 1 Colgin, Morton Noll Sur.
Set 6⅝-in. 2,364 ft.; tested S.W. and oil 2,400 ft.; O.W.D.D.
Givens & Holloway's No. 1 Wooten est., Winnie Mann Sur.
Drlg. 2,023 ft.
R. W. Price's No. 1 Crawford, J. A. Williams Sur.
Rigged up and S.D.
T. B. Smyllie's No. 1 Henderson.
Bailing 2,285 ft.; O.W.D.D.
Fred Stovall Drlg. Co.'s No. 1 H. B. Ivey, P. Martin H.R.S.
S.D. 1,750 ft.; (corrected).

SHELBY COUNTY

Bush Oil Int.'s No. 1 Windham, W. M. Blackburn Sur.
S.D. 2,366 ft.
Cliff Stovall's No. 1 Pickering Lbr. Co., C. H. Patterson Sur.
S.D. 220 ft.
Turner & Neil's No. 1 Pickering Lbr. Co., P. W. Harvey Sur.
S.D. 350 ft.

ALABAMA

HOUSTON COUNTY

Rice O. & G. Co.'s No. 1 Oakley est., SE cor. NW SW Sec. 9-3n-28e
Drlg. 2,410 ft.

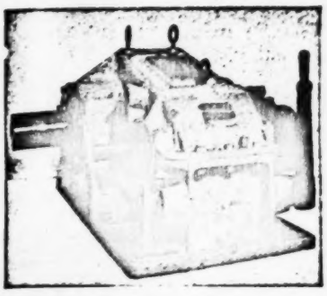
LAMAR COUNTY

DeSoto O. & G. Corp.'s No. 1 Gardner, Sec. 25-15s-16w.
S.D. 4,185 ft.

NEW AND IMPROVED EQUIPMENT

Two More Pumping Units Offered by Westinghouse

The Westinghouse Co. has announced additions to its line of oil well pumping units in the form of three sizes of double reduction drives. These are desig-



nated as OP-20, OP-27 and OP-35, and are rated at 20, 27 and 36 horsepower at 20 strokes per minute, respectively.

The gears are of the single helical type and all gears, pinions and shafts are especially heat-treated for long life. Antifriction bearings of the roller type are used.

All units are provided with ample holding brakes mounted on an extension of the high-speed shaft and are arranged for V-belt connection to prime mover, providing an easy method of changing speeds.

These units may be driven by electric motor, oil engine or by single multi-cylinder gas engine.

Wide Speed Range Offered by the Syncrogear Motor

The U. S. Electrical Manufacturing Co., 1510 South Western Avenue, Chicago, has developed the Syncrogear motor, offering variations in speed from 2 up to 10,000 r.p.m. The Syncrogear is a development in geared electric power. It is a self-containd motor with a single base, embodying a geared transmission foundationed on a heavy gear pedestal base, which supports the unusual torque strains in high torque geared reductions. The strong lined pryamidal base gives the unit mechanical strength and a streamline design. Full rated horsepower is delivered to the take-off shaft. The complete assembly occupies practically no more space than an ordinary electric motor. The fully enclosed gear compartment excludes foreign matter. The highest speed gears are not completely submerged in oil, thus preventing foaming and resistance. Gear ratios may be subsequently changed at the place of installation.

SALES AGENCY ESTABLISHED

Well Equipment Corp. has been organized as a manufacturers' sales agency with headquarters in Houston, Tex., for drilling and production equipment. C. K. Stillwagon, formerly vice president and general manager of Oil Equipment Sales Corp., is president and general manager, and S. H. Smith is secretary and treasurer. This new sales organization represents in the Gulf Coast the following manufacturers: Hamer Oil Tool, Ltd., on stop-cocks, E-Z-Out liner sleeves and mud pump vales; Kibele Manufacturing Co. on pistons and swabs; C. A. Fischer Co. on free-wheeling gauge cocks; Harbison-Fischer Co. on balls and seats, oil savers and stuffing boxes; and the Stillwagon wing union. An office and warehouse have been opened at 2023 Semmes Street.

Notes About Trade Literature

"Everything for the head of the well" is embraced in a new 20-page catalog ready for distribution by the Oil Well Improvements Co., Tulsa.

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The current number of the Yellow Strand, published by the Broderick & Bascom Rope Co., St. Louis, Mo., contains an interesting article on the world's deepest well, that of the General Petroleum Corp. in California, and the part played by B&B rope in drilling it.

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"Hibitite and Inhibited Acids" is the title of a 20-page booklet obtainable from the Monsanto Chemical Co., St. Louis, Mo., and designed primarily to provide data on Monsanto products, but containing information of general interest in connection with problems of controlling the action of acids on metals.

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The Parkersburg Rig & Reel Co., Parkersburg, W. Va., has issued four new booklets of interest to the oil industry. They are: M-7-34, "Chain-Driven Sand Reels"; L-5-34, "Vapor Pressure Wood Tanks"; N-7-34, "8C-11 Long Stroke Pumping Unit," and P-9-34, "Bolted Steel Tanks."

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An illustrated eight-page brochure has just been published by the Farrell Manufacturing Co., Joliet, Ill., describing the various types and models of truck tanks that company is making to meet modern bulk haulage conditions.

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Drilling valves and flow line valves of 6,000-pound test are the subject of a bulletin prepared by the Kerotest Manufacturing Co., Pittsburgh, Pa., maker of various oil field appliances, including christmas tree fittings, flange unions, throttle valves, gauge shutoff valves, etc.

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A booklet of 32 pages announced for distribution by E. I. duPont DeNemours & Co., Wilmington, Del., discusses "Tetralin for the Gas Industry." This booklet, designated as bulletin No. 4, is a revised and improved publication and the information was derived from actual operating results with Tetralin as a solvent for naphthalene and as a means for preventing the formation of these and gum stoppages.

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A 12-page illustrated bulletin issued by the Air Reduction Sales Co., New York, gives details concerning the Airco-DB No. 1 Tractograph, a portable, motor-propelled, hand-guided oxyacetylene cutting machine for cutting steel plates and slabs.

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A folder obtainable from the Republic Steel Corp., Massillon, Ohio, explains three reasons for the rust-resistance of Toncan iron and illustrates typical installations.

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The Worthington Pump & Machinery Corp., Harrison, N. J., is sending out a bulletin on the Worthington two-stage volute centrifugal pumps, Type UB.

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A new 12-page bulletin describing the Emco Type B ejector service regulator has been issued by the Pittsburgh Equitable Meter Co., 400 North Lexington Avenue, Pittsburgh, Pa.

Union Wire Rope Corp. Has Stocks in Tampico, Mexico

The illustration shows a warehouse of Agencia Comercial y Maritima in Tampico, Mexico, where the Union Wire Rope

Corp. of Kansas City and Tulsa maintains a stock of its oil field wire lines.

Senor Enrique O. Chapa, representative of the company in Mexico, stands at the left. Senor Chapa has a wide acquaintance in Mexican fields, where he has met many drillers and superintendents who began their oil country experience in the United States from Pennsylvania to Texas.

—

A four-day welding clinic to be held in New Orleans, La., starting October 24 has been announced by the Linde Air Products Co., distributor of materials and equipment for oxy-acetylene welding and cutting.

Wider Range of Speeds Is Obtainable From Varidrive

A new geared motor with a thousand speeds has been developed for the petroleum industry. It offers any speed over a wide range without intricate control mechanisms. Merely by turning a wheel the speed of the motor can be increased or decreased.

The U. S. Varidrive motor is a self-contained unit instead of having extraneous gear-changing devices and it embodies an electromechanical power conversion which changes the fixed constant speed of the motor to variable speeds at the take-off shaft. Variations of 1, 10 or 100 revolutions or more are available. Stability and nonfading speed are characteristics of the Varidrive motor.

The Varidrive consists of a simple squirrel-cage motor built integral with a variable-speed transmission. The latter comprises dual discs coupled with a varibelt. Speed changes are obtained by varying the effective diameter of the discs. The operator merely turns a hand wheel, which actuates a traveling hub. This, in turn, increases or diminishes the distance between the two sides of the driven discs. The motor element is comprised of a standard U. S. rotor with AutoStart principle. The motor is asbestos protected.

This new type of variable speed motor permits increased efficiency by enabling the operator to set the driven machine at the exact speed desired for any specific operation. It is made by the U. S. Electrical Manufacturing Co., 1510 South Western Avenue, Chicago, or 202 East Slauson Avenue, Los Angeles.

Men Well Known in the Equipment Field

TOM REAGAN

T. N. Hunt, president of the Authorized Appleman Bit Service Co., Houston, Tex., announces the appointment of Tom Reagan as sales and service representative in the Louisiana Gulf Coast territory on the Hunt wire line core barrel and Appleman bits.

Mr. Reagan for the last two years represented Fitzgerald & Hawthorne in the Gulf Coast. He became identified with the oil industry in 1924 with Clark & Cowden, drilling contractors, with whom he was associated until 1928, when he entered the sales end of the business.

Washover Wall Hook Made by Specialty Oil Tool Co.

The Specialty Oil Tool Co., Brea, Calif., announces the Sotco Washover hydraulic wall hook as completing its present line of fishing tools. This appliance embodies eccentric construction, which gives it the advantage of a powerful rotary vibration, and it is designed to be used below the overshot, socket, cutter or whatever engaging tool is selected as best adapted for the recovery of the fish. Its function is to bring the top of the fish into contact with overshot, socket or cutter in such a position as to enable a recovery to be made.

The tool is constructed with a heavy wall hook arm below the body which is operated by hydraulic pressure. This arm can be rotated with a circular sweep of 15 feet (6-inch size) for the location of the fish. When a contact has been made continued rotation for washover purposes causes a shaking or vibration of the fish on account of the eccentric construction of the tool. This tends to jar it loose and throw it away from the wall below the point of operation. It is then possible to pass down over the fish, steering it up through the lengths of washover pipe used to connect the wall hook with the fishing tool in the string above.

The tool itself is composed of two movable members, head and body. The body of the tool engages the head at the top intersection in a perfect ball, joint thus enabling the stress of all down weight to be taken directly by the two respective

ball and sockets on opposite sides of the square on the top of the body.

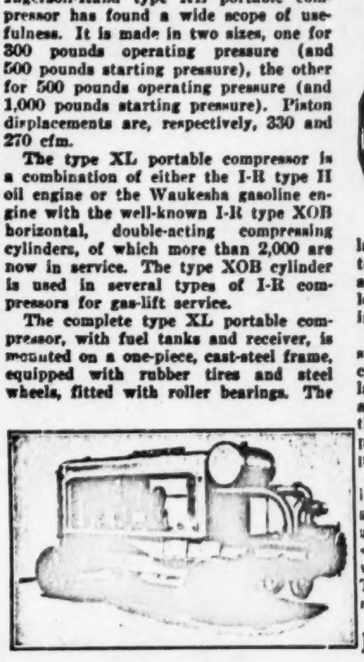
The pulling stress is taken care of by four threaded weight pins and two threaded hinge pins, the hinge pins being threaded directly through the body and head of the tool on either side.

Portable Compressor Made for Oil and Gas Field Use

Developed particularly for service in the oil and gas fields where pressures are high and requirements are exacting, Ingersoll-Rand type XL portable compressor has found a wide scope of usefulness. It is made in two sizes, one for 300 pounds operating pressure (and 500 pounds starting pressure), the other for 500 pounds operating pressure (and 1,000 pounds starting pressure). Piston displacements are, respectively, 330 and 270 cfm.

The type XL portable compressor is a combination of either the I-R type H oil engine or the Waukesha gasoline engine with the well-known I-R type XOB horizontal, double-acting compressing cylinders, of which more than 2,000 are now in service. The type XOB cylinder is used in several types of I-R compressors for gas-lift service.

The complete type XL portable compressor, with fuel tanks and receiver, is mounted on a one-piece, cast-steel frame, equipped with rubber tires and steel wheels, fitted with roller bearings. The



steel top has removable steel side covers arranged for locking.

Ingersoll-Rand, 11 Broadway, New York, or any branch office, offers a new bulletin on this high-pressure portable compressor. Ask for Form 2,124.

NEW OXWELD BLOWPIPE

The Linde Air Products Co., 30 East Forty-second Street, New York, has announced a new oxyacetylene cutting blowpipe, the Oxweld type C-24, incorporating in one unit striking features. The Oxweld type C-24 has been designed essentially to serve as a general duty cutting blowpipe, but is capable of doing heavier work, and will operate with less oxygen pressure than any preceding Oxweld cutting blowpipe. Outstanding features include an entirely new design of cutting oxygen valve, the valve being placed in an easily accessible position; a long external cutting valve lever which makes the valve easy to operate with the hand in normal gripping position; nozzles with seat protectors; closer spacing of the heating orifices about the cutting oxygen opening; new nozzle sizes; interchangeable large capacity ball-type inlet-needle-valves; interchangeable low-pressure injector or medium-pressure mixer.

STATIONARY GENERATOR

The Linde Air Products Co., 30 East Forty-second Street, New York, has announced an addition to its acetylene generating equipment. This new automatic stationary generator, known as the Oxweld Type MP-5, is rated to deliver 1,000 cubic feet of acetylene per hour, and thus takes its place as the highest capacitied, medium pressure model now available. It is listed by the Underwriters' Laboratories, Inc. Its advent should be of interest to users who want high capacity without operating two or more generators simultaneously. In general appearance it resembles the Oxweld Type MP-4 portable generator, recently announced, with which it is identical in principle, except for size and slight changes to make it suitable for stationary use.

Kennedy Introduces Valve Built for High Pressures

The Kennedy Valve Manufacturing Co., Elmira, N. Y., has placed on the market a new heavy standard bronze gate valve designed for 150-pound working steam pressure and 250-pound working water, oil or gas pressure. This valve, known as Figure 23, has all the special features of design recently incorporated in the Kennedy Figure 27 standard bronze gate valve, but is heavier throughout to withstand the higher working pressures for which it is intended.

One of the outstanding features is the large bonnet hex placed close to the body to make the entire valve more rigid and also to assist easier removal of the bonnet and stem assembly when the valve is installed with close clearances.

Another important feature is the design of the stem, which is made of specially tough bronze, has an unusually large number of heavy contact threads, and has a flexible connection between the stem head and the disc, making stripping of threads almost impossible and prolonging the life of the valve.

Additional features are the deep stuffing-box with specially selected high graphite molded packing rings, bronze gland and heavy packing nut, the substantial nonheating, nonslipping handwheel, and the heavy pipe end hexes. These valves are built in a complete range of sizes up to 3 inches.

Laredo Will Manufacture Two Humason Products

The Laredo Machine & Supply Co., Laredo, Tex., announces manufacture of the Humason gas lift valve and Humason kickoff valve for use in producing oil from wells which will not flow naturally. The kickoff valve is opened and closed by means of a wood float. The gas lift valve is the same as the kickoff valve except that the float and the external valve actuated by the float are removed.

Installation consists of one gas lift valve installed in the liner of the well, with packer above. Kickoff valves are then installed as needed up to a point within 300 feet of the top of the normal fluid level of the well. Compressed air or gas is introduced between casing and tubing at the top of the well, and kickoff valves raise the fluid.

The gas lift valve below the packer continuously removes accumulating gas, taking pressure off the sand. If the well pressure is sufficient, the bottom valve alone will flow the well without aid of compressed air or gas.

Two installations made recently in the Gulf Coast have produced good results, the manufacturer states. Both valves are patented by G. A. Humason of Houston, Tex. Full details may be obtained from the manufacturer.

NEW COMPACT CIRCUIT BREAKER

Westinghouse announces a new low-voltage "de-ion" breaker, similar in general to the standard 600-ampere, 600-volt AB breaker brought out several years ago, with the major exception that the new breaker has an interrupting capacity of 20,000 amperes. The new AB-20 is totally enclosed, being mounted in the standard 600-ampere molded case. It is available in all ratings from 50 to 600 amperes, complete with standard tripping accessories and motor mechanism.

E. L. Farnsworth, appointed service sales representative of the Tyson Roller Bearing Corp., with offices in New York, has had more than 16 years experience in the automotive replacement parts field.

CLASSIFIED ADVERTISING

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ROYALTIES producing and nonproducing in Kansas, Oklahoma and Texas. James R. Haynes, Grantville, Kansas.

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Telephone: RANdolph 8858.

Producing Oil Royalty, listed under Federal Security Act, paying monthly income in half acres and upwards at reasonable prices. P. O. Box 35, Tulsa, Oklahoma.

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ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma

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ATTRACTIVE OIL PROPERTIES
Drilling blocks, Leases and Royalties. Renewed activities East from discovery well. The hot spot of new Cherokee County field. Still opportunity to get some of best holdings at reasonable prices. All deals handled open and above board. Let me have your orders. E. W. COLE, Box 2012, Rusk, Texas.

WANT TO PURCHASE 100 bbls. of production in the south Arkansas, north Louisiana, or eastern border of Texas area. Must have locations on which additional wells can be delivered. Write, giving full description of property. Address Box G-371, The Oil and Gas Journal, Tulsa, Okla.

WANTED WILDCAT. Eastern capital will drill test well. Oklahoma or Texas if geology good and sizeable block. Give full information first letter. Address Box G-373, The Oil and Gas Journal, Tulsa, Okla.

NEW MEXICO Oil and Gas Leases and royalties. Send 50 cents in stamps for new State Oil Map of New Mexico. Roy G. Barton, Clovis, New Mexico.

BUY LAND—2½ acres, clear deed, for $75, $5 down, $5 month, in California's next prospective oil and gas field. Well down 600 ft. now. Kimbrough, 729 San Fernando Bldg., Los Angeles, Calif.

NEW MEXICO—My weekly scout report furnishes complete and reliable information on New Mexico developments. Send for copy. W. S. Patterson, Santa Fe, N. Mex.

FOR LEASE by Land Company 100,000 acres of prospective oil land in Northern Arizona. Excellent Geological report. References furnished and requested. Not interested in promotions. P. O. Bin C, Flagstaff, Ariz.

INVESTIGATE TURNER VALLEY!—Holder extensive freehold oil rights North end Turner Valley, Alberta, would lease on advantageous terms to party undertaking drilling operations. Producing wells in neighborhood. Particulars on application to Box 402, Calgary.

FOR SALE—Oil and gas leases in shallow oil territory and on well defined structures. Will furnish 500 acres, drill and case two wells for $2,000. W. P. HARLEY, Bowling Green, Ky.

Incorporations

CHARTERS—Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

DELAWARE CHARTERS—Fees small; submitted forms. Chas. G. Guyer, 901 Market Street, Wilmington, Del.

Business Opportunities

WANTED drilling contracts where contractor can carry part interest in wells or lease by contractor having good equipment for either deep or shallow work, prefer Ohio or adjoining states. Address Box G-382, The Oil and Gas Journal, Tulsa, Okla.

CLASSIFIED ADVERTISING

For Sale—Equipment

LARGE ROTARY BOILERS—(3) 125-h.p., 350-lb. W.P. "Kewanee" Rotary Boilers in transit to Houston yards. These boilers have been used on only two wells and are in unusually good condition. Interested parties should inspect them immediately or make arrangements for purchase at once for they are necessarily offered subject to prior sale.

PUMPING ENGINES—The following engines, which have been completely overhauled in our Wichita Shops, are ready for delivery from Wichita. They are priced so that they may be moved to any locality and each engine carries our regular re-built equipment guarantee. (1) 35-h.p., 4-cycle, "Superior" Gas Engine complete with standard equipment and Reversible Clutch. (1) 35-h.p., "Marion" Gas Engine with Reversible Clutch. (1) 25-h.p., "Superior" Gas Engine with Reversible Clutch.

BUTLER ELEVATORS AND SLIPS—Very attractive prices on late type 10-inch Butler Elevators with long links and any size slips desired. Stocks comprise: At Oklahoma City, Elevator with 3"x98" Links and set each of 9-in. O.D. and 9⅝-in. O.D. Slips; At McPherson, Elevator with 2½"x98" Links, 10-in., 8¼-in., 7-in. O.D., and 5¾-in. Slips; At Wichita, Elevator with 2½"x98" Links, 8¼-in., 7-in. O.D., and 5¾-in. Slips; At Houston, Elevator with 2½"x98" Links, 10-in., 8¼-in., 7-in. O.D., and 5¾-in. Slips. Any of these elevators may be purchased with either 3 or 4 sets of slips, of the size wanted, or either elevators or slips may be rented at reasonable rental fees.

UNION TOOL DRAWWORKS—No. 7½-RB, "Ideal" 3-speed with steel drum shaft boxes carrying self-aligning heavy duty Hyatt Roller Bearings. Brakes are single adjusting anchor screw type equipped with Ideal O & H brake equalizer. Reversible type brake bands. Heavily ribbed 18x30½-in. Steel Drum. Heavy H-Beam reinforced Steel Posts. 7-in. Line Shaft. 7½-in. Drum Shaft. Steel Jack Posts, Steel Chain Guards, Steel Header Boards, Steel Braces, and Regular Cathead. All overhauled and ready to go to work. This Drawworks is now located in a central stocking point, and may be moved to any locality at low cost. For price and complete information refer to any Bridgeport Store.

SEAMLESS CASING—Part of a string of extra good 7-in. O.D., 24-lb., and 8¼-in., 32-lb. Seamless Casing at Wichita. Any part offered.

BOILERS IN PANHANDLE TERRITORY—We have on hands in our Pampa yards practically all sizes from 40-h.p., 125-lb. W.P. to 125-h.p., 250-lb. W.P. of standard makes of Boilers. These are all in good condition and reasonably priced, so that they may economically be moved a considerable distance out of the Panhandle territory. When in need of any size, for any locality, it will pay to get quotations.

WANTED TO PURCHASE—We are always in the market for used Lapweld and Seamless Casing, Tubing, Line Pipe, Drill Pipe and other good used equipment. We purchase leases and entire properties for salvage. Send information on what you have to dispose of to Wichita, Kansas, Office.

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REFINERY EQUIPMENT AND STORAGE TANKS

Offering equipment from the most modern refinery ever dismantled, together with choice units from numerous other first class refineries. Can outfit complete cracking, lube, or skimming plants to meet requirements of customer. All sizes of pipe, valves, and fittings and all sizes and types of steel storage tanks.

Complete CARBONDALE WAX PLANT—latest type—approved by the manufacturer, 600 bbls. per day capacity or can be divided into 200, 300 or 400 bbls. daily capacity.

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40,000 ft. 20" Naylor Spiralweld, lockseam. Toncan Iron pipe, 40-ft. joints, with or without Victaulic Couplings, 4 years old, good as new. All or any part at real bargain. Wire, phone or write, W. C. Berry, or
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6⅝", 12¼", and 20" BIGNALL and KEELER pipe threading machines complete with seventy-five sets of dies. All equipment in perfect condition. Can be inspected at Tulsa. Wire or Write c/o P. O. Box 846, Tulsa, Okla.

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One 20 H.P. Superior Gas Engine. One No. 6 National Gear Power. Set of belt guards. Galvanized iron building 18x60. Sacrifice price of $600.00
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20 H.P. White & Middleton gas engine; 12x18 Bradford vacuum pump. Gould water circulator and Belt; 6"x82' rubber belt. Frame buildings for Plant complete. Sacrifice price of $400.00.
All Equipment in first class condition.
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405 Center St., North Muskegon, Mich.

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air Compressor. Six-inch Oster Pipe Threading Machine. Also, large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St. Cincinnati, Ohio.

For Sale—Equipment

TANKS Riveted, Bolted, Welded or Wooden. Buy and sell—cut down and erect. RALPH O. MOORE CO., Phone 5-0432, 6-3300, Tulsa, Okla.

FOR SALE—Fordson tractor with bearcat hoist. I. T. I. O. Company, Bartlesville, Oklahoma.

HOLT Caterpillar crawler tractors almost new, 5-ton size $350; 10-ton $750. Have winch for 10-ton. Location, Ky., Pa., N. Carolina. O. C. Evans, Mt. Sterling, Ky.

Equipment Wanted

WANT steam driven compressor, size 9x8x9 or smaller. Give description, condition, location, price. Box 322, Tulsa, Okla.

RELIABLE Oil Company wants to buy direct from owner any part of five hundred tank cars—sixes, eights, tens and compartments, for cash or terms. Submit proposition and complete history. Address Box G-381, The Oil and Gas Journal, Tulsa, Okla.

WANTED TO BUY
Several hundred, new or used 2, 3 and 4-inch A.P.I. Line Pipe Couplings.
In submitting material give quantity, condition, price and present location.
THE BRIDGEPORT MACHINE COMPANY
Wichita, Kansas.

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THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

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Before disclosing your invention to anyone, send for blank form:
"Evidence of Conception,"
Instructions "How to Establish Your Rights" and complete information FREE!
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JAMES E. MILLER CO., 207½ E. Third St., Tulsa, Okla., will co-operate with responsible parties seeking aid in financing projects of higher order.

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CIVIL ENGINEER—8 years pipeline experience. Valuation, surveying, mapping. Employed at present. Address Box G-370, The Oil and Gas Journal, Tulsa, Okla.

SALES ENGINEER with 15 years diversified business experience, nationally known corporations, University Graduate, desires connection as assistant to executive in Sales, Real Estate, Purchasing, Public Relations or other Commercial department. Write J. M. MORRIS, Box 331, Rolla, Missouri.

Help Wanted

WILL PAY liberally for comic cartoons with oil country background illustrating amusing incidents of the oil country. Send samples of work with first letter. Publicity Department, Bridgeport Machine Company, Wichita, Kansas.

WANTED PRIVATE SECRETARY—male—to official of moderate size oil company. Prefer single young man with good education fully capable of taking dictation. Write giving experience, age, references and salary expected. Address Box G-380, The Oil and Gas Journal, Tulsa, Okla.

To Classified Users—

The Annual Pipe Line Issue of The Oil and Gas Journal will be published on October 25th.

It will be one of the finest issues ever published and will be preserved for years as a handbook on pipe lines.

If you buy or sell leases, royalties and production or if you have secondhand equipment to sell, you will want to be represented with a classified ad in this issue.

Send us copy for your ad NOW.

Classified Department
THE OIL AND GAS JOURNAL
TULSA, OKLAHOMA

PUNISHMENT

It takes something *Extra* to make a Champion

BRONCO-BUSTING is no game for a tenderfoot. It takes a lot of "knowing how" to stand the punishment an outlaw can hand out.

And, likewise, it takes a lot of "knowing how" to make a high-quality lubricating oil. Gargoyle Lubricants are made by the special Gargoyle Process from the world's finest crudes. They last longer and lubricate better.

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It will pay you to discuss your lubrication requirements with a Magnolia Lubrication Specialist. He can show you actual records of savings made in plants similar to your own.

Get the *Extra Safety* of GARGOYLE Lubricating Oils

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